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1 INTRODUCTION

This Environmental Impact Report (EIR) provides an assessment of the potential environmental consequences of adoption and implementation of the proposed Butte County General Plan 2030 and Airport Land Use Compatibility Plan (ALUCP) override. This assessment is intended to inform county residents, decision-makers, and responsible and trustee agencies of the nature of General Plan 2030 and the ALUCP override, and their effect on the environment. This EIR was prepared in accordance with and in fulfillment of California Environmental Quality Act (CEQA) requirements. Butte County is the Lead Agency for this EIR.

A. Proposed Action

The proposed project is a comprehensive update of the existing Butte County General Plan, as well as the associated override of the ALUCP. The General Plan is the principal policy document for future conservation and development in the county, and it has a 20-year planning horizon. Because General Plan 2030 includes densities that are not consistent with the Airport Land Use Compatibility Zones in the ALUCP, adoption of this document requires an override of the ALUCP. The proposed project is described in a greater level of detail in Chapter 3.

B. EIR Scope, Issues, and Concerns

This document is a countywide Program EIR that analyzes potential environmental impacts of the adoption of the proposed General Plan 2030 and

---

1 As used throughout this document, the term “ALUCP override,” and like terminology, refers to Public Utilities Code Section 21676, which requires the Butte County General Plan be in conformance with the ALUCP, unless the Board of Supervisors makes specific findings to overrule the ALUCP, or portions of it, with a two-thirds vote.

2 CEQA Guidelines Section 15168(a) defines a Program EIR as an EIR prepared for a broad-scale visioning document, such as a General Plan, that provides a framework for specific projects to develop according to the desired land use pattern.
ALUCP override. Program EIRs are not project-specific and do not evaluate the impacts of specific development ‘projects’ that may be proposed under General Plan 2030. Such projects will require separate environmental review to secure the necessary development entitlement. This EIR is intended, where appropriate, to be used as a first-tier environmental document for future projects, but it is not intended to address impacts of individual development projects.3

Tiering subsequent development projects from this EIR will be guided by CEQA Guidelines Section 15183. Some air quality, noise, population and housing, public services and recreation, transportation and circulation, utilities, and greenhouse gas emissions evaluations are based on quantitative analyses and may be used to satisfy the criteria established by 15183(b)(4)(c) to limit examination of these environmental effects in subsequent initial studies.

The exact location and extent of construction that may be allowed by General Plan 2030 is not known at this time. Some analyses in this EIR are qualitative in nature. As part of the CEQA process, future development projects will be required to provide full quantitative analyses of their impacts. In addition, place-specific analysis, including impacts “peculiar to the project or the parcel on which the project would be located”4 must be addressed in subsequent CEQA documents.

CEQA Statutes and Guidelines, including Section 15183, will guide when and how subsequent development projects may be tiered from this EIR. As noted above, this EIR provides a quantitative analysis of projected 2030 buildout conditions for the following impact categories: air quality, noise, population and housing, public services and recreation, transportation and circulation,

---

3 As stated in Section 15152 of the CEQA Guidelines, “tiering” refers to: using the analysis contained in a broader EIR (such as one prepared for a general plan), with later EIRs and negative declarations tied to narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration on the issues specific only to the later project.

4 CEQA Guidelines Section 15183(b)(1).
utilities, and greenhouse gas emissions. This analysis may be used to satisfy criteria found in CEQA Guidelines Section 15183(c) for reliance on a certified General Plan EIR, for the purpose of evaluating projected 2030 buildout conditions.

This EIR also identifies 26 significant and unavoidable impacts resulting from implementation of General Plan 2030 and the ALCUP override. CEQA Guidelines Section 15183(c) states: “If an impact is not peculiar to the parcel or to the project, has been addressed as a significant effect in the prior EIR, or can be substantially mitigated by the imposition of uniformly applied development policies or standards... then an additional EIR need not be prepared for the [subsequent] project solely on the basis of that [previously-identified] impact.” This EIR identifies uniformly applied development policies and standards included in General Plan 2030 that are found to substantially mitigate identified impacts. Subsequent development projects may also use these uniformly applied development policies and standards to mitigate impacts.

However, not all activities contemplated and enabled by General Plan 2030 are subject to subsequent environmental review. Typically, ministerial, or non-discretionary activities, such as building permits, encroachment permits, and basic maintenance activities, are not ‘projects’ as defined by CEQA Guidelines Section 15378. Therefore, a single-family home could be constructed without CEQA review. Categorical or statutory exemptions from future environmental review are listed in Articles 18 and 19 of CEQA (PRC 15260 et seq.), and these exemptions remain unchanged with the adoption of General Plan 2030.

As indicated in Section 15300.2 of the CEQA Guidelines, some ministerial and non-discretionary activities do require subsequent environmental review where the activity is located in a particularly sensitive environment. This EIR discloses the programmatic impacts associated with ministerial and exempt activities enabled by General Plan 2030, such as building permits, with the qualification that subsequent environmental review may be required if located in a particularly sensitive environment.
The scope of this EIR was established by Butte County through the General Plan 2030 process. Environmental issues addressed in this EIR include the following:

1. Aesthetics  
2. Agriculture  
3. Air Quality  
4. Biological Resources  
5. Cultural Resources  
6. Geology, Soils, and Mineral Resources  
7. Hazards and Safety  
8. Hydrology and Water Quality  
9. Land Use  
10. Noise  
11. Population and Housing  
12. Public Services and Recreation  
13. Transportation and Circulation  
14. Utilities  
15. Greenhouse Gas Emissions

C. Report Organization

This document is organized into the following chapters:

♦ Chapter 1: Introduction. This chapter discusses the use and organization of this EIR.

♦ Chapter 2: Report Summary. This chapter summarizes the environmental consequences that would result from adoption and implementation of the proposed project, describes recommended mitigation, and indicates the level of significance of environmental impacts before and after mitigation. Chapter 2 also includes a table summarizing the impact findings of Chapter 4.
Chapter 3: Project Description. This chapter describes General Plan 2030 and the ALUCP override in detail, including a listing of proposed land use designation changes.

Chapter 4: Environmental Evaluation. This chapter provides an analysis of the potential environmental impacts of the proposed project and presents recommended mitigation measures, if required, to reduce their significance.

Chapter 5: Alternatives to the Proposed Project. This chapter considers three alternatives to the proposed project, including the CEQA-required “No Project Alternative.”

Chapter 6: CEQA-Required Assessment Conclusions. This chapter discusses growth inducement, unavoidable significant effects, significant irreversible changes as a result of the project, and cumulative impacts.

D. Environmental Review Process

The Draft EIR will be available for review by the public and interested parties, agencies, and organizations for a period of at least 45 days, as required by State law. A public hearing on the Draft EIR will be held during the review period, during which oral comments are welcome. Written comments on the Draft EIR are also encouraged. Comments should be submitted to:

Dan Breedon, Principal Planner
Butte County Department of Development Services
7 County Center Drive
Oroville, CA 95965
(530) 538-7629
dbreeden@buttecounty.net

Following the close of the public review period, a Final EIR will be prepared to respond to all substantive comments regarding the Draft EIR. The Final EIR will be made available for public review prior to consideration of its certification by Butte County. The County will hold public hearings to con-
Consider the certification of the Final EIR and the adoption of the Butte County General Plan 2030, Findings of Overriding Consideration, and ALUCP override, which may be approved as drafted or modified.
This summary presents an overview of the analysis contained in Chapter 4: Environmental Evaluation. CEQA requires that this chapter summarize the following: 1) areas of controversy; 2) significant impacts; 3) unavoidable significant impacts; 4) implementation of mitigation measures; and 5) alternatives to the project.

A. Project Under Review

This EIR provides an assessment of the potential environmental consequences of adoption of the Butte County General Plan 2030 and Airport Land Use Compatibility Plan (ALUCP) override. The General Plan is the principal policy document for future conservation and development in the county, and it has a 20-year planning horizon. Because General Plan 2030 includes densities that are not consistent with the Airport Land Use Compatibility Zones in the ALUCP, adoption of this document requires an override of the ALUCP. The proposed project is described in a greater level of detail in Chapter 3.

B. Areas of Controversy

The County issued an official Notice of Preparation on September 15, 2008 and held a scoping meeting on October 1, 2008. The official Notice of Preparation for this Program EIR was issued to the Governor's Office of Planning and Research, and forwarded to federal, State, and local agencies, and interested parties. The official scoping period for this EIR was between September 15, 2008 and October 14, 2008, during which interested agencies and the public could submit comments about the proposed project. The comments received focused primarily on the following issues:

- Impacts related to farmland conversion and conflicts with Williamson Act contracts, and mitigation options, such as conservation easements and mitigation fees;
- Impacts related to air pollution;
Impacts related to historical and archaeological resources;
Impacts related to hazards;
Impacts related to stormwater quality and drainage;
Consistency with municipal plans;
Impacts on public services;
Impacts on the State Highway System;
Strategies to reduce vehicle miles traveled and increase use of transit and alternative modes of transportation;
Impacts related to rail safety;
Wastewater treatment capacity; and
Impacts related to greenhouse gas (GHG) emissions.

All of these issues were addressed in the General Plan 2030 process. To the extent that these issues have environmental impacts, they are also addressed in this EIR.

C. Significant Impacts

Under CEQA, a significant impact on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance.

As described in Chapter 3, Project Description, implementation of the proposed General Plan 2030 and ALUCP override is anticipated to result in the development of approximately 13,700 new dwelling units and the addition of 33,800 new residents, as well as the development of 1.8 million square feet of new retail and office space and 1.1 million square feet of new industrial space by 2030. 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 steering development to existing incorporated and unincorporated cities and communities, General Plan 2030 is largely self-mitigating. Rather than mitigating impacts from implementation of General Plan 2030 through mitigation measures in this EIR, the policies and land use map in General Plan 2030 are intended to prevent the majority of environmental impacts altogether.

The ALUCP override also has the potential to generate environmental impacts within the county; however, the ALUCP override is not a policy document and therefore is not self-mitigating.

The implementation of the proposed General Plan 2030 has the potential to generate 26 significant environmental impacts. Of these impacts, 19 are the result of the proposed General Plan 2030 and ALUCP override, six are the result of General Plan 2030 combined with other cumulative development in the larger region, and one is considered an impact of both the proposed General Plan 2030 and cumulative development. Throughout this EIR, the terms “project” or “proposed project,” are used to refer to the implementation of General Plan 2030 and the ALUCP override, which will govern all development in unincorporated Butte County over the life of the document. The term “cumulative” refers to General Plan 2030 as well as development that will happen in the incorporated municipalities and the surrounding region.1

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1 See also Section B in Chapter 4.0, Environmental Evaluation, and Section D in Chapter 6, CEQA Required Assessment Conclusions, for an expanded discussion about the cumulative analysis.
The significant project impacts are in the following topic areas:

♦ Agriculture (two project impacts)
♦ Hydrology and Water Quality (two project impacts)
♦ Land Use (one project impact)
♦ Noise (one project impact)
♦ Transportation and Circulation (13 project impacts).

The significant cumulative impacts are in the following topic areas:

♦ Agriculture
♦ Biological Resources
♦ Hydrology and Water Quality
♦ Land Use
♦ Noise
♦ Transportation and Circulation.

The significant impact considered to result from both the project and cumulative development in the region is in the GHG emissions analysis. 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 GHG emissions, and GHGs are emitted by innumerable sources worldwide, global climate change is a significant cumulative impact of human development and activity. The global increase in GHG 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 Chapter 4.15 addresses project and cumulative impacts in combination.

General Plan 2030 contributes to all of the impacts on a programmatic level, while the ALUCP override contributes only to the project and cumulative impact in the land use topic.

All of the impacts are considered significant and unavoidable. They are discussed in the following two sections and summarized in Table 2-1.
D. Mitigation Measures

This EIR suggests specific mitigation measures to reduce the significant impacts of General Plan 2030. Of the 26 significant impacts, Impacts TRAF-1 through TRAF-13 provide mitigation measures. However, they are found to be significant and unavoidable after mitigation. The mitigation measures in this EIR will form the basis of a Mitigation Monitoring Program to be implemented in accordance with State law.

E. Unavoidable Significant Impacts

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. As described in Chapter 4, and shown in Table 2-1, 26 significant unavoidable impacts were identified in the areas of agriculture, biological resources, hydrology and water quality, land use, noise, transportation and circulation, and greenhouse gas emissions.

F. Alternatives to the Project

This EIR analyzes alternatives to the proposed project. Three alternatives to the proposed project are considered and described in detail in Chapter 5:

♦ No Project Alternative
♦ Concentrated Growth Alternative
♦ Rural Extension Alternative

As shown in the alternatives analysis in Chapter 5, the Concentrated Growth Alternative has the least environmental impact and is therefore the environmentally superior alternative. By focusing growth into the spheres of influence (SOI) of the county’s municipalities and into existing unincorporated communities, the Concentrated Growth Alternative would make the least contribution to the significant and unavoidable impacts that have been identi-
fied in relation to biological resources, hydrology and water quality, noise, transportation and circulation, and greenhouse gas emissions. The Rural Extension Alternative and the No Project Alternative would have greater impacts than General Plan 2030 and the ALUCP override.

G. Summary Table

Table 2-1 presents a summary of impacts and mitigation measures identified in this report. It is organized to correspond with the environmental issues discussed in Chapter 4. Table 2-1 distinguishes between two types of significant impacts: on the one hand impacts that directly result from the proposed project, which is the implementation of General Plan 2030 and the ALUCP override and which will govern all development in unincorporated Butte County over the life of the document; and on the other hand, impacts that result from the combination of General Plan 2030 and other regional development, including in the incorporated municipalities and the surrounding region. Although this is a programmatic EIR, CEQA defines a “project” as any action that “has the potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378). Impacts that are the result of the proposed project are termed “project impacts,” while impacts that are the result of the cumulative condition are termed “cumulative impacts.”

The table is arranged into six columns: 1) significant impacts; 2) classification as a project impact, as discussed above; 3) classification as a cumulative impact, as discussed above; 4) significance prior to mitigation; 5) mitigation measures; and 6) significance after mitigation. For a complete description of potential impacts, please refer to the specific discussions in Chapter 4.

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2 See also Section B in Chapter 4.0, Environmental Evaluation, and Section D in Chapter 6, CEQA Required Assessment Conclusions, for an expanded discussion about the cumulative analysis.
**TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES**

<table>
<thead>
<tr>
<th>Significant Impact</th>
<th>Project Impact</th>
<th>Cumulative Impact</th>
<th>Significance Before Mitigation</th>
<th>Significance With Mitigation</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AESTHETICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Plan 2030 goals, policies, and actions are found to avoid significant impacts related to aesthetics.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td><strong>AGRICULTURE</strong></td>
<td></td>
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</tr>
<tr>
<td>AG-1: Although the goals, policies, actions and regulations of General Plan 2030 would reduce and partially offset the conversion of farmland, the proposed project designates approximately 4,700 acres of farmlands of concern under CEQA for non-agricultural uses.</td>
<td>SU</td>
<td>These parcels are small, so they may no longer be viable for current agricultural practices. They are also located close to existing urbanized areas, which General Plan 2030 targets as appropriate locations for future growth. Placing or keeping an agricultural designation on these scattered parcels would make General Plan 2030 internally inconsistent. Therefore, this impact is significant and unavoidable.</td>
<td>SU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AG-2: Although the goals, policies, actions and regulations of General Plan 2030 would reduce and partially offset conflicts with Williamson Act contracts, the proposed project designates approximately 90 acres of lands with existing Williamson Act contracts for residential or industrial uses.</td>
<td>SU</td>
<td>The parcels with Williamson Act conflicts are small, and many are located close to existing urbanized areas or established unincorporated communities, which General Plan 2030 targets as appropriate locations for future growth. Small parcels may no longer be viable for current agricultural practices. Placing or keeping an agricultural designation on these parcels would make General Plan 2030 internally inconsistent. Therefore, this impact is significant and unavoidable.</td>
<td>SU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AG-3: Although the goals, policies, actions and regulations of General Plan 2030 would reduce and partially offset regional agricultural impacts, the proposed project would contribute to cumulatively significant agricultural impacts in the region.</td>
<td>SU</td>
<td>The amount of growth foreseen in the region and the decisions of surrounding counties regarding conversion of agricultural land are outside the control of Butte County. Therefore, this impact is significant and unavoidable.</td>
<td>SU</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LTS = Less Than Significant  S = Significant  SU = Significant Unavoidable Impact
### Table 2-1  **Summary of Impacts and Mitigation Measures** (continued)

<table>
<thead>
<tr>
<th>Significant Impact</th>
<th>Project Impact</th>
<th>Cumulative Impact</th>
<th>Significance Before Mitigation</th>
<th>Mitigation Measures</th>
<th>Significance With Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR QUALITY</td>
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*General Plan 2030 goals, policies, and actions are found to avoid significant impacts related to air quality.*

<table>
<thead>
<tr>
<th>BIOLOGICAL RESOURCES</th>
<th>SU</th>
<th>SU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BIO-1:</strong> General Plan 2030 contains extensive goals, policies, and actions that mitigate impacts to undeveloped lands that support sensitive biological resources, including special-status species, sensitive natural communities, federally-protected wetlands, and wildlife and fish movement corridors, to a less-than-significant level and that additionally minimize the effects of development on biological resources in general. Development resulting under General Plan 2030 would contribute to the on-going loss of undeveloped lands that support such sensitive biological resources in Butte County. The cumulative loss of habitat and sensitive natural communities in Butte County could potentially contribute to a general decline for the region, and might result in the loss or displacement of wildlife that would have to compete for suitable habitats with existing adjacent populations.</td>
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</table>

<table>
<thead>
<tr>
<th>CULTURAL RESOURCES</th>
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</thead>
<tbody>
<tr>
<td><strong>General Plan 2030 goals, policies, and actions are found to avoid significant impacts related to cultural resources.</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>GEOLOGY, SOILS, AND MINERAL RESOURCES</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>General Plan 2030 goals, policies, and actions are found to avoid significant impacts related to geology, soils, and mineral resources.</strong></td>
<td></td>
</tr>
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LTS = Less Than Significant  S = Significant  SU = Significant Unavoidable Impact
### Table 2-1  **Summary of Impacts and Mitigation Measures** (continued)

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</table>

#### HAZARDS AND SAFETY

General Plan 2030 goals, policies, and actions are found to avoid significant impacts related to hazards and safety.

#### HYDROLOGY AND WATER QUALITY

**HYDRO-1:** Although General Plan 2030 policies and actions reduce risks associated with levee failure, they do not eliminate risks to people and property. In addition, recently-adopted policies by FEMA would de-certify a number of levees in Butte County, which indicates that larger areas of Butte County are subject to levee inundation than realized under previous policies.

- **Significance:** SU
- **Mitigation Measures:** It is not within Butte County’s power to require or complete maintenance and improvements to levees in the county owned and maintained by private individuals and other public agencies. Therefore, the impact is considered **significant and unavoidable**.

**HYDRO-2:** Although General Plan 2030 policies and actions reduce risks associated with dam failure, they do not eliminate risks to people and property.

- **Significance:** SU
- **Mitigation Measures:** It is not within Butte County’s power to require or complete maintenance and improvements to dams in and around the county owned and maintained by other agencies. Therefore, the impact is considered **significant and unavoidable**.

**HYDRO-3:** General Plan 2030 would contribute to development in levee and dam inundation areas, resulting in a significant cumulative impact.

- **Significance:** SU
- **Mitigation Measures:** It is not within Butte County’s power to require or complete maintenance and improvements to levees or dams in the county owned and maintained by private individuals and other public agencies. Therefore, the impact is considered **significant and unavoidable**.

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<tr>
<td><strong>LAND USE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LU-1: General Plan 2030 includes residential densities that are inconsistent with the Airport Land Use Compatibility Plan, which necessitates the Airport Land Use Compatibility Plan override.</td>
<td></td>
<td></td>
<td>SU</td>
<td>Much of the areas that are inconsistent with the ALUCP are already parcelized to a density that is similar to the General Plan 2030 designations. General Plan 2030 policies and actions would promote consistency with land use plans, policies, and regulations, but would not mitigate the significant impacts from inconsistencies with the ALUCP. Therefore, the impact is significant and unavoidable.</td>
<td>SU</td>
</tr>
<tr>
<td>LU-2: General Plan 2030 and the Chico General Plan include residential densities that are inconsistent with the ALUCP, which necessitates the ALUCP override. This contributes to a significant cumulative impact.</td>
<td></td>
<td></td>
<td>SU</td>
<td>Although General Plan 2030 policies and actions would promote consistency with land use plans, policies, and regulations, they would not mitigate the significant impacts from inconsistency with the ALUCP. Furthermore, decisions of the City of Chico regarding consistency with the ALCUP are outside the control of Butte County. Therefore, this cumulative impact is considered significant and unavoidable.</td>
<td>SU</td>
</tr>
<tr>
<td><strong>NOISE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOISE-1: Implementation of General Plan 2030 would cause a substantial permanent increase in ambient noise levels because more people would be living, driving and flying in Butte County.</td>
<td></td>
<td></td>
<td>SU</td>
<td>General Plan 2030 Health and Safety Element policies would reduce many noise exposure impacts to a less-than-significant level, but would not mitigate the significant impacts from traffic noise increases and aircraft noise increases on ambient noise levels in all cases. Since this traffic and aircraft operation is an unavoidable outcome</td>
<td>SU</td>
</tr>
</tbody>
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Table 2-1  Summary of Impacts and Mitigation Measures (continued)

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<tbody>
<tr>
<td>NOISE-1 continued</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOISE-2: Implementation of General Plan 2030 would contribute to conditions that exceed County noise standards and that cause a substantial permanent increase in ambient noise levels, causing a significant cumulative noise impact.</td>
<td>SU</td>
<td>√</td>
<td>General Plan 2030 would contribute to cumulative traffic noise conditions that exceed County noise standards. Since this traffic is an unavoidable outcome of the type of residential and commercial growth foreseen in Butte County and the surrounding counties, this impact is significant and unavoidable.</td>
<td>SU</td>
<td></td>
</tr>
</tbody>
</table>

POPULATION AND HOUSING

General Plan 2030 goals, policies, and actions are found to avoid significant impacts related to population and housing.

PUBLIC SERVICES AND RECREATION

General Plan 2030 goals, policies, and actions are found to avoid significant impacts related to public services and recreation.

TRANSPORTATION AND CIRCULATION

| TRAF-1: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 32 between Muir Avenue and W. 1st Street. | S | TRAF-1: Widen State Route 32 to four lanes through this section. | SU |
| TRAF-2: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 99 between the Sutter County Line and East Biggs Highway. | S | TRAF-2: Widen and convert State Route 99 to a four-lane conventional highway through this section. | SU |

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</thead>
<tbody>
<tr>
<td>TRAF-3: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 99 between State Route 149 and the Skyway.</td>
<td>✓</td>
<td>✓</td>
<td>S</td>
<td>TRAF-3: Convert State Route 99 to a grade separated, limited access freeway facility though this section.</td>
<td>SU</td>
</tr>
<tr>
<td>TRAF-4: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 99 between East 20th Street and Cohasset Road.</td>
<td>✓</td>
<td>✓</td>
<td>S</td>
<td>TRAF-4: Widen State Route 99 to six lanes through this section.</td>
<td>SU</td>
</tr>
<tr>
<td>TRAF-5: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 99 between Eaton Road and Keefer Road.</td>
<td>✓</td>
<td>✓</td>
<td>S</td>
<td>TRAF-5: Widen State Route 99 to four lanes through this section.</td>
<td>SU</td>
</tr>
<tr>
<td>TRAF-6: Implementation of General Plan 2030 would lead to unacceptable LOS E operations on State Route 162 between Larkin Road and State Route 70.</td>
<td>✓</td>
<td>✓</td>
<td>S</td>
<td>TRAF-6: Widen State Route 162 to four lanes through this section.</td>
<td>SU</td>
</tr>
<tr>
<td>TRAF-7: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 162 between State Route 70 and Lower Wyandotte Road.</td>
<td>✓</td>
<td>✓</td>
<td>S</td>
<td>TRAF-7: Widen State Route 162 to six lanes through this section.</td>
<td>SU</td>
</tr>
<tr>
<td>TRAF-8: Implementation of General Plan 2030 would lead to unacceptable LOS E operations on State Route 162 between Foothill Boulevard and Canyon Drive.</td>
<td>✓</td>
<td>✓</td>
<td>S</td>
<td>TRAF-8: Widen State Route 162 to four lanes though this section.</td>
<td>SU</td>
</tr>
<tr>
<td>TRAF-9: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on Cohasset Road between State Route 99 and East Avenue.</td>
<td>✓</td>
<td>✓</td>
<td>S</td>
<td>TRAF-9: Construct a raised median on this roadway section to enhance capacity.</td>
<td>SU</td>
</tr>
</tbody>
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### Table 2-1  Summary of Impacts and Mitigation Measures (continued)

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</thead>
<tbody>
<tr>
<td>TRAF-10: Implementation of General Plan 2030 would lead to unacceptable LOS D operations on Midway between Hegan Lane and the planned Southgate Extension.</td>
<td>✓</td>
<td></td>
<td>S</td>
<td>TRAF-10: Widen Midway to four lanes though this section.</td>
<td>SU</td>
</tr>
<tr>
<td>TRAF-11: Implementation of the Implementation of General Plan 2030 would lead to unacceptable LOS F operations on the Skyway between State Route 99 and Notre Dame Boulevard.</td>
<td>✓</td>
<td></td>
<td>S</td>
<td>TRAF-11: Construct a raised median on this roadway section to enhance capacity.</td>
<td>SU</td>
</tr>
<tr>
<td>TRAF-12: Implementation of General Plan 2030 would lead to unacceptable LOS D/E operations on the Skyway between Neal Road and Bille Road.</td>
<td>✓</td>
<td></td>
<td>S</td>
<td>TRAF-12: Convert this section of the Skyway to a four-lane limited access expressway.</td>
<td>SU</td>
</tr>
<tr>
<td>TRAF-13: Implementation of General Plan 2030 would lead to unacceptable LOS D/E operations on the Skyway between Bille Road and Pentz Road.</td>
<td>✓</td>
<td></td>
<td>S</td>
<td>TRAF-13: Widen the section of the Skyway between Bille Road and Wagstaff Road to a four-lane, divided arterial, and widen the section of the Skyway from Wagstaff Road to Pentz Road to a four-lane, undivided arterial.</td>
<td>SU</td>
</tr>
<tr>
<td>TRAF-14: Implementation of General Plan 2030 would cause increased traffic that would exacerbate existing deficiencies along regional roadways, contributing to a cumulatively significant transportation impact.</td>
<td></td>
<td></td>
<td>SU</td>
<td>Because mitigation for these deficiencies is not identified and would be outside the control of Butte County, the impact is considered significant and unavoidable.</td>
<td>SU</td>
</tr>
</tbody>
</table>

**UTILITIES**

*General Plan 2030 goals, policies, and actions are found to avoid significant impacts related to utilities.*

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## Summary of Impacts and Mitigation Measures (continued)

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</tr>
</thead>
<tbody>
<tr>
<td><strong>GREENHOUSE GAS EMISSIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC-1: Implementation of General Plan 2030 would result in GHG emissions that would contribute to cumulative GHG emissions and global climate change. The 2020 GHG forecast for the county indicates that emissions would be greater than 85 percent of current (2006) conditions, creating a significant contribution to GHG emissions and associated climate change impacts. Policies and actions would provide a comprehensive framework for reducing GHG emissions in the county, but they would not ensure that the County can meet the reduction goal.</td>
<td>✔️</td>
<td>✔️</td>
<td>SU</td>
<td>As part of the General Plan 2030 process, the County considered a wide range of policies and actions to reduce GHG emissions, and all feasible measures are included. However, they do not ensure that the County will meet its reduction goal, so the impact is considered cumulatively significant and unavoidable.</td>
<td>SU</td>
</tr>
</tbody>
</table>
This Environmental Impact Report (EIR) provides an assessment of the Public Review Draft Butte County General Plan 2030, published on September 2, 2009, as modified by the Butte County Board of Supervisors on January 19 and 21, 2010, as well as the associated override of the Airport Land Use Compatibility Plan (ALUCP). These documents would supersede the current Butte County General Plan, which contains elements adopted variously between 1971 and 1995. General Plan 2030 is intended to provide the control and regulation necessary to ensure that growth in Butte County occurs in an orderly fashion.

Butte County is also currently updating its Zoning Ordinance to make it consistent with General Plan 2030, and anticipates release of a Public Review Draft Zoning Ordinance in spring/summer 2010. Since the Zoning Ordinance will strictly implement General Plan 2030, it is expected that the Initial Study for the Zoning Ordinance will rely significantly on this EIR.

Butte County General Plan 2030 includes an update of the Housing Element, which was last fully updated in 2004. On August 25, 2009, a Negative Declaration and the updated Housing Element were adopted by the Butte County Board of Supervisors. The August 2009 Housing Element was based on the existing General Plan land use map. The County has proposed revisions to the Housing Element in order to bring it into conformance with General Plan 2030 and the requirements of State law. The Housing Element analyzed by this EIR is based on the proposed land use map that is included in General Plan 2030.

General Plan 2030 contains the following Elements:

- Land Use
- Housing
- Economic Development
- Agriculture
- Water Resources
- Circulation
- Conservation and Open Space
The goals, policies and actions in General Plan 2030 would guide development and conservation in Butte County through 2030. Because General Plan 2030 includes residential densities that are not consistent with the Airport Land Use Compatibility Zones in the ALUCP, adoption of this document requires an override of the ALCUP.

In compliance with the California Environmental Quality Act (CEQA), this EIR describes the potential environmental impacts associated with the adoption and implementation of General Plan 2030 and the ALUCP override. Section 15125 of the CEQA Guidelines establishes that the physical environmental conditions at the time of the issuance of the notice of preparation constitute the baseline conditions by which it is determined whether an impact is significant. The notice of preparation for the Butte County General Plan 2030 EIR was published on September 15, 2008 (State Clearinghouse #2008092062). The Butte County Department of Development Services is the Lead Agency for the environmental review of the proposed project.

A. Location and Setting

Butte County lies in north central California at the northeastern end of the Sacramento Valley, approximately 150 miles northeast of San Francisco and 70 miles north of Sacramento. Highways 70 and 99, which extend in a north-south direction through Butte County, are the principal transportation corridors connecting the county to the region. Highways 32 and 162 provide sub-regional connections to areas to the east, northeast, and west of the county and to Interstate 5. Butte County’s regional location is shown in Figure 3-1.

From the northeastern end of the Sacramento Valley, Butte County extends into the foothills at the confluence of the southern Cascade and the northern Sierra Nevada mountain ranges. The total land area of Butte County is
Figure 3-1
Regional Location

approximately 1,680 square miles,\(^1\) and can be divided into three general topographical areas: the western 45 percent of the county is a valley area, about 25 percent of the county is foothills to the east of the valley, and the eastern 30 percent of the county is mountainous. The US Forest Service is a major landowner within Butte County’s mountain region, holding a total of over 135,000 acres\(^2\) in the Plumas and Lassen National Forests.

Most of Butte County’s urbanized areas are located in the Sacramento River valley near prime agricultural lands and major transportation corridors. The urban areas within the county include the five incorporated municipalities of Chico, Oroville, Paradise, Gridley and Biggs, as well as numerous small unincorporated communities. As of January 2009, the total population of the county was approximately 220,700 residents.\(^3\) The majority of these residents, approximately 136,800 people, live in incorporated municipalities within the county. The balance of these residents, approximately 83,900 people, live in the county’s unincorporated areas.\(^4\) The incorporated municipalities generally consist of single-family residential communities; the unincorporated communities are typically less dense.

Butte County was part of the original partition of California into 27 counties. The county was incorporated in 1850 and named after the Sutter Buttes, which State legislators thought were located within the boundaries of Butte County. By 1850, the county’s population was over 3,500 people. When the boom of the Gold Rush slowed, the county’s population leveled as the

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\(^1\) Butte County Geographic Information Systems, November 21, 2006.


county’s economic emphasis shifted back towards agriculture. Since the 1950’s, Butte County’s population has been steadily increasing.

Today, people are attracted to Butte County by its rural setting and natural beauty, by the productivity of its agricultural sector, and by the county’s recreational opportunities. Before the economic downturn that began in late 2006, Butte County experienced significant pressures for growth. From 2000 to 2006, the population of Butte County grew a total of 6.9 percent. Similarly, during that same timeframe Butte County saw a 9.6 percent increase in households, with a particularly heavy concentration of new home construction in the foothill region. Over the next 20 years, Butte County is likely to see continued growth, including residential and employment expansion. General Plan 2030 would direct that growth to specific locations within the unincorporated area.

**B. Project Area**

General Plan 2030 defines the project area as Butte County. Land inside the city or town limits of incorporated municipalities is not under Butte County’s jurisdiction. Therefore, this EIR focuses on the analysis of potential impacts on lands only within unincorporated Butte County, including land inside each municipality’s Sphere of Influence (SOI), but not inside municipality limits. This area is referred to as “Butte County” and the “Planning Area” in this document and is shown in Figure 3-2.

The boundaries of Butte County’s five incorporated municipalities and their SOI’s are described below:

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Butte County, August 2007, Setting & Trends Report, page 2-3. The greater increase in households than in population reflects a trend of second home or vacation home construction in the county.
a. The City of Chico
The City of Chico spans approximately 29 square miles\(^6\) in the northwest part of Butte County, at the intersection of Highways 99 and 32. The city branches out in the north to include the Chico Municipal Airport and in the northeast to include Bidwell Park.

The currently adopted SOI for the City of Chico totals approximately 34 square miles\(^7\) and largely conforms to city limits. Chico’s SOI also includes a portion of the North Chico Specific Plan Area to the north of the city, and unincorporated Butte County land along Highway 99 in the north and along Highway 32 to the east.

b. The City of Oroville
Located in southern Butte County at the intersection of Highways 70 and 162, the City of Oroville spans 13 square miles\(^8\) and covers an irregular shape that includes the Oroville Municipal Airport. The adjacent unincorporated communities of Thermalito and South Oroville are under County jurisdiction.

Oroville’s SOI is a 50-square-mile area,\(^9\) which includes the Oroville Wildlife Refuge and Thermalito in its western portion, South Oroville and Kelly Ridge in its eastern and northeastern portions, and the Las Plumas area and a part of Palermo in its southern portion. State Water Project lakes and afterbays are located to the west, north and northeast of the Oroville SOI.

c. The Town of Paradise
The Town of Paradise sits in the foothills of the Sierra Nevada mountain range in north central Butte County. The town area is approximately 18

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\(^6\) City of Chico, October 2006, Final Municipal Service Review, page 2-2.
\(^7\) City of Chico, October 2006, Final Municipal Service Review, page 2-2.
\(^8\) City of Oroville, March 2008, Oroville 2030 General Plan EIR, page 3-1.
square miles,\textsuperscript{10} located at the northern terminus of Highway 191. The adjacent unincorporated community of Magalia is under County jurisdiction.

The Town of Paradise SOI is approximately 46 square miles,\textsuperscript{11} with the majority of the SOI extending to the north, south and east of the town. Paradise’s SOI includes the unincorporated communities of Magalia and Paradise Pines to the north and the Paradise Skypark Airport to the south.

d. The City of Gridley
The City of Gridley is located in the southwest corner of Butte County. Highway 99 runs in a north-south direction through the eastern portion of the city and the Union Pacific Railroad extends through the center of the city. The city is approximately 2 square miles in area.\textsuperscript{12}

Gridley’s SOI is approximately 3 square miles\textsuperscript{13} and extends primarily to north of the city, bounded by Pryde Avenue.

e. The City of Biggs
The City of Biggs is located in the southwest portion of Butte County, about 5 miles north of Gridley. The city has a square shape and an area of approximately 0.5 square miles.\textsuperscript{14} The Biggs city limits include the City’s wastewater treatment plant, which is located on a detached parcel west of West Biggs-Gridley Road.

Biggs’ SOI extends primarily to the north and east of the city. The total area of the Biggs SOI is less than 1 square mile.\textsuperscript{15}

\textsuperscript{10} Town of Paradise, August 2007, Final Municipal Service Review, page 1-5.
\textsuperscript{11} Butte County GIS, 2009.
\textsuperscript{12} City of Gridley, February 2008, Final Municipal Service Review, page 17.
\textsuperscript{13} Butte County GIS, 2009.
\textsuperscript{14} City of Biggs, November 2008, Final Municipal Service Review, page 1-10.
\textsuperscript{15} Butte County GIS, 2009.
C. Objectives and Process

This section describes the objectives and processes for the Butte County General Plan 2030.

1. Objectives of the Proposed Project

General Plan 2030 provides the basis for the County’s land use and development policy, and represents basic community values, ideals and aspirations to govern a shared environment through 2030. The State of California requires that General Plans contain the following:

- Land Use
- Circulation
- Housing
- Conservation
- Open Space
- Noise
- Safety

At the discretion of each jurisdiction, the General Plan may combine these elements and may add optional elements relevant to features of a community.

The California Government Code also requires that a General Plan be comprehensive, internally consistent and plan for the long term. Although required to address the issues specified by State law, the General Plan may be ultimately organized in a way that best suits the individual community. The General Plan should be clearly written, easy to administer and available to all those concerned with the community’s development.

The overall objectives of General Plan 2030 are enumerated in the General Plan 2030 Guiding Principles. These objectives are to:

- Partner with municipalities, special districts and unincorporated communities on important regional planning issues.
- Coordinate all modes of transportation with the transportation planning agencies.
♦ Address areas of urban development for anticipated growth during the next 20 years to meet the housing needs of Butte County residents.

♦ Protect the county airports in coordination with the 2000 Airport Land Use Compatibility Plan.

♦ Address the protection, enhancement, utilization and management of natural resources and the environment.

♦ Promote the public’s health, safety and welfare.

♦ Play a critical role in establishing a positive environment for economic development.

♦ Address agriculture as an important aspect of Butte County’s economy that will be protected, maintained, promoted and enhanced.

♦ Identify appropriate locations and the type of growth that will occur in rural areas while protecting the integrated benefits of agricultural resources, natural resources, and the environment.

♦ Address the need for new parks and recreation opportunities. Cultural resources that are significant to Butte County’s history will be identified and protected.

♦ Address, identify and promote ways to maintain or enhance economic opportunity, viability and community well-being while protecting and restoring the natural environment.

♦ Address where and how the full array of public services and/or facilities will be provided to the varied and diverse geography of the county.

♦ Address the protection and management of water resources.

In addition to the objectives outlined in the General Plan 2030 Guiding Principles, the proposed project aims to accommodate anticipated population growth and to allow all Butte County residents to maintain economic use and value of their property.16

16 This objective was identified by County staff and the consultant team subsequent to the adoption of the Guiding Principles. This objective is intended to proac-
2. General Plan 2030 Process
The process to update the existing Butte County General Plan began in September 2006 and is scheduled to be completed with the adoption of the General Plan and ALUCP override by the Board of Supervisors, in 2010. General Plan 2030 was developed with extensive community input and reflects the community’s vision for Butte County.

Each major task in the General Plan 2030 process included a “Meeting Series.” Each series was made up of the following meetings:

- A Public Workshop where community members met to learn about the progress of General Plan 2030 and discuss and provide input on issues.
- One or more Citizens Advisory Committee (CAC) meetings at which CAC members deliberated on the issues at hand and reviewed input from the Public Workshop.
- One or more Planning Commission Study Sessions at which Commissioners reviewed the outcomes of the Public Workshop and CAC meetings and made recommendations to the Board of Supervisors.
- One or more Board of Supervisors Study Sessions at which the Supervisors reviewed the outcomes of all the previous meetings and provided final direction to County staff and consultants.

Meeting Series were held on the following topics:
- **Meeting Series #1**: Issues Identification
- **Meeting Series #2/3**: Alternatives Finalization
- **Meeting Series #4**: Alternatives Evaluation & Selection
- **Meeting Series #5**: Goals & Policies Development
- **Meeting Series #6**: Housing Element
- **Meeting Series #7**: Public Review Draft General Plan

tively address future housing allocations under State Housing Element law and to reflect public input provided throughout the General Plan 2030 process.
In addition, Meeting Series #8 on the Public Review Draft Zoning Ordinance will be held after publication of this Draft EIR.

The CAC consists of 34 Butte County citizens that were selected by the Board of Supervisors to oversee the Butte County General Plan 2030 process. The CAC represented the diverse community in Butte County throughout the update process, acting as a “sounding board” for ideas from community members, County staff and consultants. The CAC also reviewed working drafts of documents and made recommendations to the Planning Commission and Board of Supervisors. To develop the Butte County General Plan 2030, there were a total of 27 CAC meetings, all of which were open to the public. The CAC will also hold an additional meeting after publication of this Draft EIR during Meeting Series #8, as discussed above.

As part of the Meetings Series schedule, the County held a number of public workshops and community meetings. A total of 19 additional public meetings and workshops were held at various locations across Butte County in the form of area-wide workshops and community meetings. Seven of the public meetings were area-wide workshops held in the following parts of the county where urban growth is expected to take place:

- Central Buttes Area
- Durham/Dayton/Nelson Area
- Gridley-Biggs Area
- Lake Oroville Area
- Paradise Area
- Chico Area
- Oroville Area

Twelve community meetings took place in the unincorporated communities of Butte County, including:

- Cherokee
- Cohasset
- Concow/Yankee Hill/Jarbo Gap
- Feather Falls/Forbestown/Clipper Mills
At the area-wide workshops and community meetings, participants discussed the area’s assets, issues and existing conditions. The input received was incorporated into the General Plan 2030 process in the form of land use and policy alternatives.

For all public workshops, the Butte County Department of Development Services conducted extensive outreach, using a wide variety of tools and methods to inform and encourage the community to participate in the process. Additionally, outreach material included information on alternative methods for participation, including email, phone calls, standard mail and an online forum available on the Butte County General Plan 2030 website. The following is a list of methods and tools used to inform the public of upcoming meetings:

- **County Website.** The Department of Development Services maintains a website (www.buttegeneralplan.net) devoted to informing the public about, and encouraging participation in, the Butte County General Plan 2030 process. This website also includes a video archive of meetings related to the Butte County General Plan 2030.

- **Local Newspapers.** Public notices, press releases and public service announcements were sent to the following press outlets ten days prior to public meetings: Chico Enterprise Record, Chico News & Review, Paradise Post, Oroville Mercury News and the Gridley Herald.

- **Local Television Stations.** Many local television stations reserve airtime for upcoming community events and public service announcements.
Prior to each of the seven area-wide workshops, press releases were sent to the following television stations for broadcasting: KHSL, KNVN, and KRCR.

♦ Local Radio Stations. Interviews regarding the Butte County General Plan 2030 were held with KPAY.

♦ Community Websites. Many communities in unincorporated Butte County host their own community websites. These websites often include local news and upcoming events. When available, local websites were used to announce upcoming meetings.

♦ Postcards. Over 25,000 postcards were sent throughout the county to inform the public of upcoming workshops and community meetings.

♦ Posters. 8.5-inch x 11-inch posters were sent to City Halls, Butte County libraries, local post offices and community centers for posting on kiosks and bulletin boards. Additional supplies of postcards were also provided at these locations.

♦ Roadside Signs. 18-inch x 24-inch roadside signs announcing community meetings and area-wide workshops were posted at key roadway intersections. Signs were typically posted two weeks in advance.

♦ Email and Direct Mail. Prior to public meetings, emails were sent to the buttgeneralplan.net listserv that includes over 600 email addresses. This list is comprised of stakeholders, various community groups and individuals who signed up on the General Plan 2030 website. In addition, the County mailed meeting announcements directly to participants from past meetings.

♦ Butte County General Plan 2030 T-Shirts. T-shirts with a decal of the General Plan 2030 project schedule were provided to staff, CAC members and members of the public to help generate discussion and awareness of the update process. T-shirts were also used as prizes for participants at public meetings.

♦ Butte County Department of Development Services. An area devoted to General Plan 2030 has been established in the Development Services
Department lobby with outreach materials and information. Here, members of the public may read about the process and are provided with a free copy of the *Existing Conditions Briefing Book*, which summarizes the setting and trends in Butte County.

- **Butte County Libraries.** General Plan 2030 information and documents were provided at all branch libraries in the Butte County Library system.

- **Butte County Fair.** General Plan 2030 information was provided at a booth at the annual Butte County Fair.

- **Newsletters.** After the land use alternatives were developed, Butte County released a newsletter summarizing the General Plan 2030 process to date, as well as the next steps and upcoming meeting series. In addition, Butte County released a second newsletter following the Goals and Policies development phase to provide an update on the overall process, as well as to advertise upcoming meetings.

- **Presentations and Updates.** Butte County staff provided updates on the General Plan 2030 processes to the Butte County User’s Group, a group of contractors, builders, engineers, surveyors and residents interested in development and permitting processes in the county, as well as to the Planning Commission and Board of Supervisors. In addition, Butte County staff presented information about General Plan 2030 to a wide range of organizations and groups.

As required by State law, the Public Review Draft General Plan 2030 has been available for public comment, and this EIR will be circulated for a review period at least 45 days in length. In addition, the summary of changes to the Public Review Draft General Plan 2030 from the Butte County Board of Supervisors meetings on January 19 and 21, 2010 is being circulated for review with this EIR. During this time, the public will be allowed to submit additional comments on General Plan 2030 and this EIR. All of the comments received will be taken into consideration at the public hearings held before the Planning Commission and Board of Supervisors prior to certification of this EIR and adoption of General Plan 2030 and the ALUCP override. In considering General Plan 2030 and the ALUCP override, the Planning
Commission and Board of Supervisors will review the comments received and this accompanying EIR.

D. Major Components of General Plan 2030

The following provides a summary of the major components of General Plan 2030.

1. General Plan 2030 Contents and Organization

General Plan 2030 includes an introduction and nine separate elements that establish goals, policies and actions. The elements cover the topics required by California State Government Code Section 65302. In addition, General Plan 2030 includes chapters that list the General Plan 2030 Guiding Principles, describe Butte County, provide a glossary, and list preparers of the General Plan, as well as appendices that list each of the General Plan 2030 goals and provide noise contour maps. A brief explanation of the topics included in General Plan 2030 is provided below.

♦ Land Use Element. The State-required Land Use Element designates all lands within unincorporated Butte County for specific uses such as housing, retail, industrial, and agricultural uses. The Land Use Element also provides development regulations for each land use designation and overall land use policies for the County.

♦ Housing Element. The State-required Housing Element demonstrates how the County will meet its existing and projected housing needs, including its share of the regional housing need. This Element addresses specific sites with development capacity to meet the projected housing need, reviews the results of the previous Housing Element, describes the public participation process for the Housing Element Update, assesses housing needs, and inventories resources and constraints.

♦ Economic Development Element. This Element addresses Butte County’s local economy, job creation, and fiscal health.
Agriculture Element. This Element includes goals, policies, and actions intended to conserve agricultural land, promote agricultural uses, and maintain the natural resources necessary to foster agricultural growth.

Water Resources Element. This Element includes goals, policies, and actions intended to protect and conserve Butte County’s water sources, stormwater management, water service providers, water storage facilities, the supply and demand of water in Butte County, and the County’s management efforts for water resources.

Circulation Element. State law requires that a Circulation Element specify the general location and extent of existing and proposed major streets and other transportation facilities. The Element is correlated with the Land Use Element to provide adequate pedestrian, bicycle, motor vehicle, transit, air transportation, and emergency access to serve both new and existing land uses. The Element also addresses transit-oriented development; cooperation with other agencies, such as the California Department of Transportation; and the environmental effects of transportation, such as air quality and greenhouse gas (GHG) emissions. The circulation of infrastructure related to energy, water, wastewater, and stormwater are discussed in the Water Resources, Conservation and Open Space, and Public Facilities and Services Elements.

Conservation and Open Space Element. This Element combines two elements required under State law: the Open Space Element and the Conservation Element. It addresses the six types of open space identified by State law: open space for the preservation of natural resources, open space used for the managed production of resources, open space for outdoor recreation and scenic resources, open space for public health and safety, open space in support of the mission of military installations, and open space for the protection of Native American sacred sites. This Element also addresses GHGs, energy, air quality, biological resources, timber resources, mineral and soil resources, cultural resources, and scenic resources.

Health and Safety Element. This Element combines two elements required under State law: the Noise Element and the Safety Element. It
provides information about risks in Butte County due to natural and human-made hazards, and contains goals, policies, and actions designed to protect the community and its property from hazards and noise. The Health and Safety Element addresses noise problems, quantifies current and projected noise levels from a variety of sources, and establishes noise compatibility guidelines for different land uses. It also addresses risks associated with flooding and dam or levee inundation; seismic and other geologic hazards; fire hazards; and hazardous materials. This Element also addresses emergency response, disaster preparedness, and community health.

♦ Public Facilities and Services Element. This Element provides a policy framework related to the current state of public services and facilities within the county, including general government services, fire protection and emergency medical services, sheriff services, public education, libraries, parks and recreation, solid waste and waste diversion, and wastewater.

2. General Plan 2030 Goals, Policies and Actions
Each element of General Plan 2030 contains background information and a series of goals, policies, and actions. The goals, policies, and actions provide guidance to the County on how to direct change and manage its resources over the next 20 years. The following provides a description of each and explains the relationship between each:

♦ A **goal** is a description of the general desired result that the County seeks to create through the implementation of General Plan 2030.

♦ A **policy** is a specific statement that guides decision-making as the County works to achieve a goal. Such policies, once adopted, represent statements of County regulation. A policy is on-going and requires no further implementation. The General Plan’s policies set out the standards that will be used by County staff, the Planning Commission and Board of Supervisors in its review of land development projects and in decision-making about County actions.
♦ An action is an implementation measure, procedure, or technique intended to help to achieve a specified goal. The County must take additional steps to implement each action in the General Plan. An action is something that can and will be completed.

3. General Plan 2030 Land Use Designations

This section describes the proposed land use designations and land use map of General Plan 2030. The General Plan 2030 land use map is shown in Figure 3-3. The Deer Herd Migration Area Overlay is shown separately in Figure 3-4.

General Plan 2030 defines various land use designations by their allowable uses and maximum densities and intensities. The land use designations described in General Plan 2030 establish the types and intensity or density of uses allowed on each parcel; these densities and intensities are listed in Table 3-1. Table 3-2 provides the acreage for each land use designation.

In General Plan 2030, standards of building density for residential uses are stated as the allowable range of dwelling units per gross acre. This means that the number of allowable units on a parcel can be calculated by multiplying the number of acres by the allowable density. Second dwelling units are not included in the density calculations.

Standards of building intensity for non-residential uses are stated as maximum floor-area ratios (FAR) based on gross acreage. As illustrated in the margin of this page, FAR is a ratio of the gross building square footage permitted on a lot to the gross square footage of the lot. For example, on a site with 10,000 square feet of land area, a FAR of 1.0 will allow 10,000 gross square feet of building floor area to be built. On the same site, a FAR of 2.0 would allow 20,000 square feet of floor area (e.g. a two-story building with 100 percent of lot coverage, or a four-story building with 50 percent lot coverage), and a FAR of 0.4 would allow 4,000 square feet of floor area.
The following sections describe the proposed land use designations for General Plan 2030.

a. Agriculture
This designation allows the cultivation, harvest, storage, processing, sale, and distribution of all plant crops, especially annual food crops, as well as roadside stands for the sale of agricultural products grown or processed on the property. The Agriculture designation also allows livestock grazing, animal husbandry, intense animal uses, and animal matter processing. Alternative energy facilities are allowed in the Agriculture designation, subject to permit requirements. Residential uses in the Agriculture land use designation are limited to one single-family dwelling and a second dwelling unit per legal parcel. Farm labor housing is also permitted. The minimum parcel size ranges from 20 to 320 acres, although existing parcels smaller than the minimum may remain as legal nonconforming parcels.

b. Agriculture Services
This designation allows all agricultural uses described above, as well as agriculture-related services that are complementary to existing agricultural uses, including industrial uses such as processing facilities, commercial uses such as agricultural equipment sales, and technologies that use agricultural byproducts. Alternative energy facilities are allowed in the Agriculture Services designation, subject to permit requirements. No residential uses are allowed, except for caretakers’ residences. This designation allows for a maximum FAR of 0.8.

c. Timber Mountain
This designation allows forest management and the harvesting and processing of forest products. Lands zoned Timber Preserve are located in this designation. Alternative energy facilities are allowed in the Timber Mountain designation, subject to permit requirements. Residential uses are limited to one single-family dwelling per legal parcel. The minimum parcel size is 160 acres, although existing parcels smaller than that minimum may remain as legal nonconforming parcels.
### TABLE 3-1  
**DENSITY AND INTENSITY ALLOWED BY GENERAL PLAN 2030 LAND USE DESIGNATIONS**

<table>
<thead>
<tr>
<th>Land Use Designation</th>
<th>Allowable Range of Residential Density</th>
<th>Allowable Maximum Floor Area Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>1 unit per 20 to 320 acres</td>
<td></td>
</tr>
<tr>
<td>Agriculture Services</td>
<td></td>
<td>0.8</td>
</tr>
<tr>
<td>Timber Mountain</td>
<td>1 unit per 160 acres</td>
<td></td>
</tr>
<tr>
<td>Resource Conservation</td>
<td>1 unit per 40 acres</td>
<td></td>
</tr>
<tr>
<td>Foothill Residential</td>
<td>1 unit per 1 to 40 acres</td>
<td></td>
</tr>
<tr>
<td>Rural Residential</td>
<td>1 unit per 5 acres or more</td>
<td></td>
</tr>
<tr>
<td>Very Low Density</td>
<td>1 unit per 5 acres to 1 unit per acre</td>
<td></td>
</tr>
<tr>
<td>Low Density</td>
<td>1 to 3 units per acre</td>
<td></td>
</tr>
<tr>
<td>Medium Density</td>
<td>3 to 6 units per acre</td>
<td></td>
</tr>
<tr>
<td>Medium High Density</td>
<td>6 to 14 units per acre</td>
<td></td>
</tr>
<tr>
<td>High Density</td>
<td>14 to 20 units per acre</td>
<td></td>
</tr>
<tr>
<td>Very High Density</td>
<td>20 to 30 units per acre</td>
<td></td>
</tr>
<tr>
<td>Mixed Use</td>
<td>4 to 20 units per acre</td>
<td>0.5</td>
</tr>
<tr>
<td>Retail and Office</td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td>Recreation Commercial</td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td>Sports and Entertainment</td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td>Industrial</td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td>Research and Business Park</td>
<td></td>
<td>0.5</td>
</tr>
</tbody>
</table>

Note: The Public and Planned Unit Development designations do not include density or intensity standards.
<table>
<thead>
<tr>
<th>Land Use Designation</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>483,355</td>
</tr>
<tr>
<td>Agriculture Services</td>
<td>465</td>
</tr>
<tr>
<td>Timber Mountain</td>
<td>351,720</td>
</tr>
<tr>
<td>Resource Conservation</td>
<td>34,750</td>
</tr>
<tr>
<td>Foothill Residential</td>
<td>50,165</td>
</tr>
<tr>
<td>Rural Residential</td>
<td>36,165</td>
</tr>
<tr>
<td>Very Low Density Residential</td>
<td>12,320</td>
</tr>
<tr>
<td>Low Density Residential</td>
<td>2,410</td>
</tr>
<tr>
<td>Medium Density Residential</td>
<td>6,130</td>
</tr>
<tr>
<td>Medium High Density Residential</td>
<td>520</td>
</tr>
<tr>
<td>High Density Residential</td>
<td>75</td>
</tr>
<tr>
<td>Mixed Use</td>
<td>1,045</td>
</tr>
<tr>
<td>Retail and Office</td>
<td>1,530</td>
</tr>
<tr>
<td>Recreation Commercial</td>
<td>750</td>
</tr>
<tr>
<td>Sports and Entertainment</td>
<td>105</td>
</tr>
<tr>
<td>Industrial</td>
<td>1,985</td>
</tr>
<tr>
<td>Research and Business Park</td>
<td>100</td>
</tr>
<tr>
<td>Public</td>
<td>31,240</td>
</tr>
<tr>
<td>Planned Unit Development</td>
<td>505</td>
</tr>
<tr>
<td>Undesignated rights-of-way</td>
<td>15,575</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,030,910</strong></td>
</tr>
</tbody>
</table>

d. Resource Conservation
This designation allows natural, wilderness, and study areas, as well as limited
recreational and commercial recreational uses that do not substantially
detract from the area’s value for habitat, open space, or research. Residential
uses are limited to one single-family dwelling per legal parcel, except in the
North Chico Specific Plan area, where residential uses in the Resource Con-
servation designation are prohibited. Existing parcels smaller than the mini-
mum may remain as legal nonconforming parcels. The minimum parcel size
is 40 acres.

e. Foothill Residential
This designation allows single-family dwellings at rural densities of 1 to 40
acres per dwelling unit, depending on the zoning. Existing parcels smaller
than the minimum may remain as legal nonconforming parcels.

f. Rural Residential
This designation allows single-family dwellings at rural densities of 1 dwelling
unit per 5 acres or more (up to 0.2 units per acre). Existing parcels smaller
than the minimum may remain as legal nonconforming parcels.

g. Very Low Density Residential
This designation allows single-family dwellings at densities from 1 dwelling
unit per 5 acres to 1 dwelling unit per acre (0.2 to 1 units per acre). Existing
parcels smaller than the minimum may remain as legal nonconforming par-
cels.

h. Low Density Residential
This designation allows single-family dwellings at densities of 1 to 3 dwelling
units per acre. Existing parcels smaller than the minimum may remain as
legal nonconforming parcels.
i. Medium Density Residential
This designation allows detached and attached single-family dwellings at densities of 3 to 6 dwelling units per acre. Existing parcels smaller than the minimum may remain as legal nonconforming parcels.

j. Medium High Density Residential
This designation allows a mixture of urban residential uses, including detached and attached single-family homes, duplexes, townhomes, condominiums, multiple-dwelling structures, mobile home parks, group quarters, and care homes, at densities of 6 to 14 dwelling units per acre. Existing parcels smaller than the minimum may remain as legal nonconforming parcels.

k. High Density Residential
This designation allows higher-density urban residential uses, including townhomes, condominiums, multiple-dwelling structures, mobile home parks, group quarters, and care homes, at densities of 14 to 20 dwelling units per acre. Existing parcels smaller than the minimum may remain as legal nonconforming parcels.

l. Very High Density Residential
This designation allows high-density urban residential uses, including townhomes, condominiums, multiple-dwelling structures, mobile home parks, group quarters, and care homes, at densities of 20 to 30 dwelling units per acre. This designation is not applied to any parcels in the county in the General Plan 2030 land use map, but may be applied through General Plan Amendments in the future. Existing parcels smaller than the minimum may remain as legal nonconforming parcels.

m. Mixed Use
This designation allows mixed but compatible uses in close proximity to each other, including residential, retail, service, lodging and office uses. Townhomes, garden apartments, apartments, live/work units, and condominiums are the types of residences that would typically be found in this designation. Mixed use buildings with two or more uses in the same structure are encour-
aged in this designation, but single use residential, retail, or office buildings are also allowed. Since this designation allows for both residential and commercial uses, it allows a wider residential density range and a higher FAR than other designations and is applied to areas along major roads with adequate infrastructure and amenities to support higher densities. This designation allows 4 to 20 dwelling units per acre and a maximum FAR of 0.5.

n. Retail and Office
This designation allows structures and activities providing a full range of merchandise and services to the general public, as well as professional/office uses. Residential uses are allowed when it can be shown that such uses will be operated in conjunction with a commercial use. This designation allows for a maximum FAR of 0.4.

o. Recreation Commercial
This designation allows recreation and tourism-related uses. Examples of uses that are considered appropriate under this designation include, but are not limited to, golf courses, eating and drinking establishments, food and beverage sales, wedding facilities, gasoline service stations, public buildings, hotels and motels, offices, owner-occupied residences, RV parks, resorts, and vacation cabins. Many uses under this designation are subject to a conditional use permit to ensure compatibility with surrounding uses. However, uses that do not typically conflict with other uses, such as a passive recreation park, are permitted as of right. This designation allows for a maximum FAR of 0.4.

p. Sports and Entertainment
This designation allows sports and entertainment uses as primary uses, including sports facilities, golf courses, theaters, and amphitheaters, as well as a range of related commercial uses that are compatible with the primary uses. The related uses may include localized retail, commercial retail, and service establishments. This designation allows for a maximum FAR of 0.4.
q. Industrial
This designation allows the processing, manufacturing, assembly, packaging, storage, and distribution of goods and commodities. It also allows for warehouses, storage, logistics centers, trucking terminals, and railroad facilities. Alternative energy facilities are allowed in the Industrial designation, subject to permit requirements. In addition, this designation allows hazardous waste management facilities where it can be demonstrated that potential environmental impacts can be mitigated. Industrial uses are allowed by right where applicants can demonstrate that adequate existing services are already available. This designation allows for a maximum FAR of 0.4.

r. Research and Business Park
This designation allows office, research, and technology-related uses, and is intended to promote green industry. The allowed uses are narrowly defined so as to ensure compatibility between uses. Following is a partial, representative listing of the primary permitted uses:

♦ High and advanced technology; research and development; laboratories, including university-based research; and facilities used for testing and analysis of products or uses.
♦ Business and professional corporate headquarters, regional offices and data processing facilities.
♦ Educational facilities associated with energy, design, construction, agriculture, manufacturing, or utility technologies.
♦ Clean energy generation, production or distribution facilities.
♦ Agricultural finished product manufacturing facilities.
♦ Cultural, recreational, agricultural and environmental tourism facilities and centers.

Industrial uses are limited to those manufacturers who are engaged in the production of low volume, high value products and particularly advanced technology products. Businesses requiring outdoor production and storage are prohibited. This designation allows for a maximum FAR of 0.5.
s. Public
This designation allows large facilities owned and operated by government agencies, including schools, colleges, airports, dams and reservoirs, disposal sites, recreation facilities, conservation areas, fire stations, and other government buildings and property. Alternative energy facilities are allowed in the Public designation, subject to permit requirements. It also allows quasi-public uses such as churches, hospitals, private schools, day cares, cemeteries, and educational and institutional uses.

t. Planned Unit Development
This designation identifies future developments that will be considered under a Planned Unit Development application. The intent of this designation is to encourage and maximize opportunities for more integrated, flexible and superior design than is available through the application of conventional regulation.

4. General Plan 2030 Overlays
This section describes the proposed overlays of General Plan 2030. An overlay is applied over an underlying land use designation. Overlays provide more specific regulations than the underlying designation, or they identify the area for a future planning effort, such as an Area Plan or Specific Plan. These overlays are described below and in Table 3-3.

a. Existing Area, Neighborhood or Specific Plan Overlay
An Area Plan, Neighborhood Plan or Specific Plan has already been developed and adopted for the following areas:
- North Chico
- Chapman-Mulberry
- Durham-Dayton-Nelson
- Stringtown Mountain
TABLE 3-3  GENERAL PLAN 2030 OVERLAYS

<table>
<thead>
<tr>
<th>Overlay</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Plan Overlay (Existing Specific Plans)</td>
<td>92,292</td>
</tr>
<tr>
<td>Berry Creek Area Plan Overlay</td>
<td>50,153</td>
</tr>
<tr>
<td>Specific Plan Overlay (Specific Plans to be Developed)</td>
<td>12,754</td>
</tr>
<tr>
<td>Unique Agriculture Overlay</td>
<td>4,384</td>
</tr>
<tr>
<td>Retail Overlay</td>
<td>50</td>
</tr>
<tr>
<td>Solid Waste Management Facility Overlay</td>
<td>1,216</td>
</tr>
<tr>
<td>Airport Overlay</td>
<td>61,244</td>
</tr>
<tr>
<td>Deer Herd Migration Area Overlay</td>
<td>326,140</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>548,233</strong></td>
</tr>
</tbody>
</table>


The General Plan 2030 land use designations within these areas are generally consistent\(^\text{17}\) with the applicable Area, Neighborhood, or Specific Plan. There are separate development standards that apply in these areas, which are identified in the applicable Area, Neighborhood or Specific Plan.

b. Berry Creek Area Plan Overlay
This overlay designation calls for the development of an Area Plan for the Berry Creek area by the Berry Creek community. The Plan will include rural residential, retail, public, and agricultural uses. Section D.5.f of this chapter provides additional information about the Berry Creek Area Plan. Until

\(^{17}\) In some cases, the applicable Area, Neighborhood, or Specific Plan includes slightly different land use designation categories than the updated land use designations in General Plan 2030. As discussed in Section E of this chapter, conforming amendments to Area and Specific Plans are included as part of this Project Description.
an Area Plan is adopted, any development within this area is subject to the underlying land use designations.

c. Specific Plans to be Developed Overlay
This overlay applies to areas that are expected to be developed under a Specific Plan. Each Specific Plan will be intended to implement the vision identified in the General Plan. Section D.5.g provides additional information about future Specific Plans. Until a Specific Plan is adopted, any development within this area is subject to the underlying land use designations.

d. Unique Agriculture Overlay
This overlay designation allows agricultural support and specialty agriculture uses either by right or under discretionary permit, regardless of whether such uses are allowed in the underlying designation, as a means to protect and promote small-scale agriculture. Allowed uses include wineries, roadside stands, farm-based tourism, bed and breakfasts, and ancillary restaurants and/or stores, as well as the uses allowed by the underlying designation.

e. Retail Overlay
This overlay allows retail, service or office uses in addition to the uses allowed in the underlying designation.

f. Solid Waste Management Facility Overlay
This overlay allows uses that are accessory and/or related to solid waste and/or septage disposal, as well as uses that are compatible with landfill operations. Compatible uses are uses that do not involve on-going occupation by people; uses that are not bothered by the visual, noise, odor, and traffic issues associated with the landfill; and uses with their own visual, noise, odor, and traffic issues that are not desired elsewhere. Examples of such uses include recycling centers, compost facilities, and other uses that may intercept landfill waste, and some types of recreational facilities.
g. Airport Overlay
This overlay pertains to areas that are within Airport Land Use Compatibility Zones and are subject to additional restrictions under the ALUCP.

h. Deer Herd Migration Area Overlay
This overlay includes Winter and Critical Winter deer herd migration areas. The Winter Deer Herd Migration Area Overlay requires a minimum lot size of 20 acres, and the Critical Winter Deer Herd Migration Area Overlay requires a minimum lot size of 40 acres. Development may be clustered at smaller lot sizes than these minimums in order to protect the deer herd areas, provided that the non-development areas are protected under permanent conservation easements.

5. Major Changes from the Existing General Plan
General Plan 2030 proposes a number of changes to the land use designations from the existing Butte County General Plan land use map. This section describes the major changes. This section is provided for informational purposes. This EIR does not evaluate the changes in General Plan 2030 relative to the existing General Plan, but rather evaluates the impacts of General Plan 2030 relative to existing conditions, as required by CEQA Guidelines Section 15126.2.

a. Parcel-Based Designations
General Plan 2030 designations would be parcel-based. The existing General Plan designations are not parcel-based, which results in some parcels having different General Plan designations applied to different parts of the parcel. Almost all parcels would have a single designation under General Plan 2030.

b. Minimum Parcel Sizes in Agricultural and Timber Lands
The minimum parcel sizes for agricultural and timber land use designations would increase. The existing General Plan calls for the following minimum lot sizes: 5 acres in Orchard and Field Crops; 40 acres in Grazing and Open Land; and 40 acres in Timber Mountain. General Plan 2030 proposes to combine the agricultural land use designations into one Agriculture designation with a 20- to 320-acre minimum parcel size. General Plan 2030 also pro-
poses to increase the minimum parcel size to 160 acres in the Timber Mountain land use designation.

c. Agricultural Residential
The existing Agricultural Residential (AR) designation would be eliminated. This designation allowed agricultural uses as well as a wide range of residential densities from 1- to 40-acre lots. Lands with the AR designation have been changed to agricultural, timber or residential designations under General Plan 2030.

d. Berry Creek Area Plan
Through the Berry Creek Area Plan Overlay, General Plan 2030 identifies Berry Creek as an area for which an Area Plan will be developed by the Berry Creek community. The intent of the Area Plan would be to maintain the rural character of this community while improving opportunities to locate jobs and services in Berry Creek. The underlying General Plan land use designations would remain in effect until and unless the Area Plan is adopted, at which point the land use designations in that Plan would replace the designations in the General Plan. The intended development potential of the future Berry Creek Area Plan as identified in the Land Use Element of General Plan 2030 is included in the total development evaluated by this EIR.

e. Specific Plans
There are seven areas in the county that would be intended for development under a Specific Plan. A “Specific Plan” is defined in the California Government Code (Section 65450 et seq) as a legal tool for detailed design and implementation of a defined portion of the area covered by a General Plan. A Specific Plan includes detailed regulations, conditions, programs, and/or proposed legislation that are needed to implement General Plan designations and policies on a particular site. The seven Specific Plan areas in General Plan 2030 include:

- Upper Stilson Canyon
- Doe Mill/Honey Run
- Paradise Urban Reserve
Southeast Paradise
South Ophir
Rio D’Oro
Stringtown Mountain

These areas have underlying designations that would remain in effect until and unless the Specific Plan is adopted, at which point the land use designations in that Plan would replace the designations in the General Plan. Each Specific Plan will require a separate Specific Plan EIR at the time the Plan is adopted.

f. Planned Unit Developments
There are two land areas that would be intended for development as part of a Planned Unit Development, the Tuscan Ridge and Paradise Summit areas. This EIR analyzes these areas according to their intended development potential under the Planned Unit Development, as identified in the Land Use Element of General Plan 2030. Each project developed as a Planned Unit Development will require a separate CEQA document at the time the project is approved.

g. Oroville 2030 General Plan
The land use designations in some areas around Oroville would be changed to reflect the land use designations included in the City of Oroville’s 2030 General Plan. In addition, the planned residential densities in Thermalito would be reduced relative to the existing General Plan.

h. Foothill and Mountain Communities
The land use designations in several foothill and mountain communities, including Magalia and Bangor, would be changed to reduce the allowed development intensity.

E. Conforming Amendments to Existing Area and Specific Plans

In order to maintain consistency between General Plan 2030 and existing Area and Specific Plans, the following actions would be required at the same
time that General Plan 2030 and the ALUCP override are adopted. Thus, they are considered part of the proposed project evaluated by this EIR:

- The Durham-Dayton-Nelson Area Plan would be amended to conform to the General Plan land use designations included in the proposed General Plan 2030. For example, the existing Durham-Dayton-Nelson Area Plan includes Low Density Residential and Medium Density Residential designations, which allow densities of up to 6 and 13 dwelling units per acre, respectively. In order to be consistent with the set of land use designations included in General Plan 2030, the Area Plan would be modified to replace those designations with Medium Density Residential and Medium High Density Residential designations, which allow densities of 3 to 6 dwelling units per acre and 6 to 14 dwelling units per acre, respectively.

- The North Chico Specific Plan would be amended by ordinance to note that it conforms to the General Plan land use designations included in the proposed General Plan 2030. In addition, second units would be allowed in the North Chico Specific Plan area in the residential designations, consistent with General Plan 2030 land use designations applied countywide.

- The Stringtown Mountain Specific Plan would be amended to conform to the General Plan land use designations included in the proposed General Plan 2030. For example, the existing Stringtown Mountain Specific Plan includes Detached and Attached Single Family Residential designations, which allow densities ranging from 1 to 5 dwelling units per acre. In order to be consistent with the set of land use designations included in General Plan 2030, the Specific Plan would be modified to replace those designations with Medium Density Residential, which allows a density of 3 to 6 dwelling units per acre.

- The Chapman/Mulberry Neighborhood Plan would be amended to conform to the General Plan land use designations included in the proposed General Plan 2030. For example, the existing Chapman/Mulberry Neighborhood Plan includes a Low Density Residential designation, which allows a density of up to 6 dwelling units per acre. In order to be consistent with the set of land use designations included in General Plan
2030, the Neighborhood Plan would be modified to replace that designation with Medium Density Residential, which allows a density of 3 to 6 dwelling units per acre.

In addition, General Plan 2030 would correct some inconsistencies between existing land uses, zoning and the General Plan within Area Plan and Specific Plan areas. For example, parcels that are currently used and/or zoned for a public or recreation commercial use but that have an existing General Plan designation for agriculture would be changed to reflect the existing land use/zoning.

The existing Paradise Urban Reserve Area Land Use Plan would be carried forward unchanged in General Plan 2030 through the Paradise Urban Reserve Specific Plan Overlay.

This EIR incorporates by reference or otherwise relies upon CEQA documents prepared as part of existing Area and Specific Plans that are carried forward. In addition, this EIR considers the development potential of the Area and Specific Plans discussed in this section, taking into consideration both existing development and the future development potential within these areas allowed under General Plan 2030.

Other Area Plans would be eliminated under the proposed General Plan 2030. Since no action is required regarding these Area Plans, this EIR does not evaluate them.

♦ The urban reserve policies under the Chico Area Land Use Plan apply to an area that has been annexed to the City of Chico, and would thus be eliminated. The Chico Area Greenline would remain as part of the General Plan 2030 Land Use Element.

♦ The Gridley-Biggs Area Land Use Plan policies would no longer be consistent with the General Plan land use map, and would therefore be eliminated under General Plan 2030.
F. General Plan Projected 2030 Buildout

Butte County has the capacity to accommodate development within the General Plan projected 2030 buildout and beyond. This EIR evaluates the projected development that will occur under the General Plan through the year 2030, or “projected 2030 buildout,” consistent with CEQA requirements that an EIR evaluate the “reasonably foreseeable” direct and indirect impacts of a proposed project.

The maximum theoretical buildout of General Plan 2030, which is discussed further in Section G, below, would be the development of every parcel with the maximum amount of development allowed under General Plan 2030. The maximum theoretical buildout would result in 97 percent more units in the unincorporated County in 2030 than is projected by the Butte County Association of Governments (BCAG). BCAG forecasted this growth based on the past 15 years of building permit data and information on future development trends. Therefore, it is extremely unlikely that the maximum theoretical buildout would occur by the year 2030, which is the horizon year for the General Plan.

Moreover, by or before 2030, it is probable that Butte County will have adopted an update to General Plan 2030, in keeping with past decisions in the California courts, which dictate that local jurisdictions should update General Plan projections every 10 years.
Plans regularly. Therefore, development after 2030 is expected to take place under a revised General Plan, rather than under General Plan 2030. Consistent with CEQA statutes, this Draft EIR considers the “reasonably foreseeable” effects of adopting General Plan 2030, which would result from development allowed between the adoption of the documents and their horizon year of 2030. For the purposes of this EIR, this is termed the “projected 2030 buildout.” The projected 2030 buildout is based on an estimate of the amount of maximum theoretical buildout that would occur by 2030.

Based on the methodology described in this section and as shown in Table 3-4, the projected 2030 buildout of the unincorporated county includes the following:

♦ 13,700 new dwelling units
♦ 33,800 new residents
♦ 1.8 million square feet of new retail/office space
♦ 1.1 million square feet of new industrial space

All of the analyses in this EIR are based on a consistent interpretation of the General Plan 2030 land use map and policies and the type and amount of growth that General Plan 2030 would allow. However, the various analyses in this EIR require two different types of data inputs: some analyses require spatial inputs only and some require both quantitative and spatial inputs. In each case, the required analysis is determined by the standard of significance used for the impact discussion.

Analyses that require a quantitative estimate of growth include the traffic generation, air pollution emissions, greenhouse gas emissions, noise generation, population growth, impacts on public services and utilities, and recreation. Impacts in these areas are generated by an increase in the number of people living and working in Butte County, which generates consequent increases in traffic, noise, emissions and use of services.

Therefore, a reliable analysis depends on a reasonable, quantitative estimate of new population and employment. For these analyses, the projected buildout in 2030 was considered “reasonably foreseeable” and was used in the analysis.

Analyses that are based on spatial location only include aesthetics, agriculture, exposure to localized air pollution and noise, biological resources, cultural resources, geology, hazards and safety, hydrology and water quality, and land use. These analyses must consider whether General Plan 2030 would allow any development in a geographic area, such as a fire hazard severity zone or critical deer herd habitat, which could trigger potential impacts. For these analyses, the question is not how much development General Plan 2030 would allow, but where that development could potentially be located. Therefore, all potential development allowed by General Plan 2030 was evaluated to assess impacts in these topics.

<table>
<thead>
<tr>
<th></th>
<th>Existing Development (2009)</th>
<th>Projected 2030 Development (2030 Minus Existing)</th>
<th>Total Projected 2030 Buildout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dwelling Units</td>
<td>37,000</td>
<td>13,700</td>
<td>50,700</td>
</tr>
<tr>
<td>Retail/office space (square feet)</td>
<td>700,000</td>
<td>1.8 million</td>
<td>2.5 million</td>
</tr>
<tr>
<td>Industrial space (square feet)</td>
<td>380,000</td>
<td>1.1 million</td>
<td>1.5 million</td>
</tr>
<tr>
<td>Residents</td>
<td>83,900</td>
<td>33,800</td>
<td>117,700</td>
</tr>
</tbody>
</table>

*Department of Finance, 2009.

Source: DC&E, 2009.
This section provides a detailed synopsis of the process used to estimate projected 2030 buildout. By way of introduction, it is important to understand several overall points about the estimation process and its meaning:

- As described below, the projected 2030 buildout was estimated based on the best available information. Since this projection covers a relatively long timeframe of 20 years, it is likely that there will be deviations from the development projections. However, deviations from the projected 2030 buildout are not in themselves a basis for finding inadequacy of General Plan 2030 or this EIR, since these projections represent Butte County’s best estimate of “reasonably foreseeable” development under the General Plan.

- The projected 2030 buildout estimate is used as a basis for the environmental assessment, but it does not restrict or specify the actual physical location of future development that will be permitted under General Plan 2030. Even if an area is not identified as having quantifiable new development by 2030 in this EIR, it can still accommodate new development in keeping with the General Plan’s policies. Conversely, geographic areas or potential development projects for which development is assumed in this EIR are not in any way “pre-cleared” for development or privileged for special consideration by County staff or the Board of Supervisors; development in those areas still requires normal review under regular County policies that are spelled out in General Plan 2030, the Butte County Zoning Ordinance, and other County regulations.

1. Projected 2030 Buildout Quantity
The first step in calculating projected 2030 buildout was to estimate the total quantity of development that is likely to occur in Butte County through 2030. The basis for this estimate was the growth projections for the unincorporated county and the county’s five municipalities prepared by BCAG in 2006. BCAG’s projections show a total of 10,568 new units through 2030. BCAG also projected that there would be 34,825 new jobs in all of Butte County by 2030. Assuming that 5 percent of this employment growth would occur within the unincorporated county, and assuming a standard rate of square feet of building space per employee, approximately 450,000 square feet
of retail and office uses and 450,000 square feet of industrial uses is projected for unincorporated Butte County by 2030.

Today, most observers agree that BCAG’s projections might have been somewhat low, and a low assumption regarding buildout might lead to an underestimate of potential environmental impacts. In order to be more conservative with regard to environmental impacts, this EIR assumes that residential development through 2030 will be approximately 30 percent greater than that predicted by BCAG. Increasing the BCAG projection by 30 percent results in a projection of 13,700 new dwelling units. In addition, this EIR assumes that non-residential development will be significantly greater than the BCAG projection, which was based on the land use patterns in the existing General Plan. Because the land use map in General Plan 2030 represents a more aggressive approach to generating employment uses in Butte County than the existing General Plan, this EIR assumes that there could be 1.8 million square feet of new retail/office space and 1.1 million square feet of new industrial space through 2030.

As a further step, the projected new residential units needed to be converted into projected new residents. This was done by using the State Department of Finance projection of 2.47 persons per household in Butte County, which results in an estimate of 33,800 new residents through 2030.

2. Allocation of Development Quantity to Specific Areas
Once the total likely development in the county through 2030 was estimated, this development had to be assigned to specific places in Butte County. To make these assignments, three specific types of development were considered: anticipated development projects, 2030 development areas, and remaining land use designations. Each of these types of development is explained in this section, which is summarized in Table 3-5. Development locations are mapped in Figure 3-5.
## Table 3-5  Projected 2030 Buildout and Assumptions by Geographic Area

<table>
<thead>
<tr>
<th>Geographic Area</th>
<th>Projected 2030 Buildout</th>
<th>Assumed Level of Growth</th>
<th>Reason for Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rio D'Oro Specific Plan</td>
<td>2,700 units; 248,000 sf commercial</td>
<td>100% of development capacity included in the Specific Plan application.</td>
<td>Development application has been submitted.</td>
</tr>
<tr>
<td>Las Plumas Study Area</td>
<td>2,060 units; 248,000 sf commercial; 87,000 sf industrial</td>
<td>100% of development projected by MEA, plus capacity of Mixed Use sites identified in Housing Element sites inventory</td>
<td>MEA is underway; sites identified for Housing Element sites inventory.</td>
</tr>
<tr>
<td>Tuscan Ridge PUD</td>
<td>165 units</td>
<td>100% of the preliminary development estimate</td>
<td>Preliminary interest from developer; relatively low amount of development proposed.</td>
</tr>
<tr>
<td>Paradise Summit PUD</td>
<td>335 units</td>
<td>100% of development capacity allowed by General Plan 2030</td>
<td>Development application has been proposed. Relatively low amount of development proposed.</td>
</tr>
<tr>
<td>Berry Creek Area Plan</td>
<td>30 units; 35,000 sf commercial</td>
<td>10% of development capacity allowed by General Plan 2030</td>
<td>Located far from services and infrastructure; significant land constraints; low development pressure.</td>
</tr>
<tr>
<td>Upper Stilson Canyon Specific Plan</td>
<td>75 units</td>
<td>25% of development capacity allowed by General Plan 2030</td>
<td>Infrastructure constraints; significant land constraints.</td>
</tr>
<tr>
<td>Doe Mill/Honey Run Specific Plan</td>
<td>750 units; 261,000 sf commercial</td>
<td>50% of the preliminary development estimate</td>
<td>Preliminary interest from developer, but relatively high amount of development proposed and some land constraints.</td>
</tr>
<tr>
<td>Southeast Paradise Specific Plan</td>
<td>200 units; 17,000 sf commercial</td>
<td>25% of development anticipated by Town</td>
<td>Infrastructure constraints; significant land constraints.</td>
</tr>
<tr>
<td>Stringtown Mountain Specific Plan</td>
<td>675 units</td>
<td>25% of development capacity allowed by General Plan 2030</td>
<td>Infrastructure constraints; significant land constraints.</td>
</tr>
<tr>
<td>Garden Drive Research and Business Park</td>
<td>650,000 sf office</td>
<td>50% of preliminary development estimate</td>
<td>Preliminary interest from developer, but relatively high amount of development proposed.</td>
</tr>
<tr>
<td>Paradise Urban Reserve Specific Plan</td>
<td>0 units</td>
<td>No development under Specific Plan</td>
<td>Town of Paradise is focusing on the Southeast Paradise Specific Plan as its next growth area, and it is not anticipated that the Paradise Urban Reserve Specific Plan will be developed by 2030.</td>
</tr>
</tbody>
</table>
### Table 3-5: Projected 2030 Buildout and Assumptions by Geographic Area (continued)

<table>
<thead>
<tr>
<th>Geographic Area</th>
<th>Projected 2030 Buildout</th>
<th>Assumed Level of Growth</th>
<th>Reason for Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>2030 Development Areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Area 2, North Chico</td>
<td>1,040 units;</td>
<td>60% of the residential and 10% of the non-residential development potential</td>
<td>Close to existing urbanized area with development pressure.</td>
</tr>
<tr>
<td>Study Area 2, North Chico</td>
<td>78,000 sf commercial;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Area 5, Magalia</td>
<td>175 units;</td>
<td>60% of the residential and 10% of the non-residential development potential</td>
<td>Close to existing urbanized area; limited development potential under General Plan 2030.</td>
</tr>
<tr>
<td>Study Area 5, Magalia</td>
<td>134,000 sf commercial;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Area 7, Concow</td>
<td>125 units</td>
<td>10% of the residential development potential</td>
<td>Rural unincorporated community.</td>
</tr>
<tr>
<td>Study Area 17, Durham</td>
<td>25 units</td>
<td>10% of the residential development potential</td>
<td>Rural unincorporated community.</td>
</tr>
<tr>
<td>Study Area 18, Durham Dayton/</td>
<td>23,000 sf industrial;</td>
<td>5% of the non-residential development potential</td>
<td>Developer interest; highway access.</td>
</tr>
<tr>
<td>Highway 99</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Area 21, Thermalito</td>
<td>440 units;</td>
<td>40% of the residential and 5% of the non-residential development potential</td>
<td>Close to existing urbanized area.</td>
</tr>
<tr>
<td>Study Area 21, Thermalito</td>
<td>5,000 sf commercial;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Area 23, Eastern Oroville</td>
<td>1,710 units</td>
<td>20% of the residential development potential</td>
<td>Close to existing urbanized area, but low development pressure.</td>
</tr>
<tr>
<td>Study Area 23, Eastern Oroville</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Area 25, Thermalito</td>
<td>40 units</td>
<td>60% of the residential development potential</td>
<td>Close to existing urbanized area; City of Oroville has designated as a development area.</td>
</tr>
<tr>
<td>Study Area 25, Thermalito</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Area 28, Southern Oroville</td>
<td>150 units</td>
<td>20% of the residential development potential</td>
<td>Close to existing urbanized area, but low development pressure.</td>
</tr>
<tr>
<td>Study Area 29, Palermo</td>
<td>50 units</td>
<td>20% of the residential development potential</td>
<td>Semi-rural unincorporated community.</td>
</tr>
<tr>
<td>Study Area 30, Bangor</td>
<td>25 units</td>
<td>10% of the residential development potential</td>
<td>Rural unincorporated community.</td>
</tr>
<tr>
<td>Study Areas 31 and 33, Biggs Area</td>
<td>255 units</td>
<td>40% of the residential and 5% of the non-residential development potential</td>
<td>Close to existing urbanized area.</td>
</tr>
<tr>
<td>Study Areas 31 and 33, Biggs Area</td>
<td>40,000 sf commercial;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Area 34, North of Gridley</td>
<td>15 units</td>
<td>40% of the residential development potential</td>
<td>Close to existing urbanized area.</td>
</tr>
<tr>
<td>Study Area 34, North of Gridley</td>
<td>68,000 sf industrial;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 3-5  Projected 2030 Buildout and Assumptions by Geographic Area (continued)

<table>
<thead>
<tr>
<th>Geographic Area</th>
<th>Projected 2030 Buildout</th>
<th>Assumed Level of Growth</th>
<th>Reason for Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chico Area (including Study Area 2, Bell Muir)</td>
<td>335 units; 41,000 sf commercial; 421,000 sf industrial</td>
<td>60% of the residential and 10% of the non-residential development potential</td>
<td>Close to existing urbanized area with development pressure.</td>
</tr>
<tr>
<td>Cohasset</td>
<td>95 units</td>
<td>10% of the residential development potential</td>
<td>Rural unincorporated community.</td>
</tr>
<tr>
<td>Honcut</td>
<td>5 units</td>
<td>10% of the residential development potential</td>
<td>Rural unincorporated community.</td>
</tr>
<tr>
<td>Yankee Hill</td>
<td>150 units</td>
<td>10% of the residential development potential</td>
<td>Rural unincorporated community.</td>
</tr>
<tr>
<td>Oroville SOI</td>
<td>170,000 sf industrial</td>
<td>10% of the non-residential development potential</td>
<td>Reflects the potential for industrial growth projected by the Oroville 2030 General Plan EIR.</td>
</tr>
</tbody>
</table>

**Remaining Land Use Designations**

<table>
<thead>
<tr>
<th>Remaining Land Use Designation</th>
<th>Projected 2030 Buildout</th>
<th>Assumed Level of Growth</th>
<th>Reason for Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Density Residential</td>
<td>400 units</td>
<td>100% of the development potential on vacant HDR parcels</td>
<td>Sites included in Housing Element sites inventory.</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1,040 units</td>
<td>52 homes per year</td>
<td>Projected continuation of permit history over past 10 years.</td>
</tr>
<tr>
<td>Timber Mountain</td>
<td>20 units</td>
<td>1 home per year</td>
<td>Projected continuation of permit history over past 10 years.</td>
</tr>
<tr>
<td>Deer Herd Migration Area Overlay</td>
<td>420 units</td>
<td>21 permits per year</td>
<td>Projected continuation of permit history over past 10 years.</td>
</tr>
</tbody>
</table>

Note: sf = square feet.

- This includes parcels designated for Industrial within the Oroville SOI, but not within a study area.
- The Agriculture permit history has been adjusted for the geographic area of Agriculture under General Plan 2030 compared to the existing General Plan. The geographic area assumed for Agriculture excludes the Deer Herd Migration Area Overlay because the Overlay is a more restrictive land use designation and will dictate the allowed development intensity.
- The Timber Mountain permit history has been adjusted for the geographic area of Timber Mountain under General Plan 2030 compared to the existing General Plan. The geographic area assumed for Timber Mountain excludes the Timber Preserve areas, which do not allow residential uses, and the National Forest areas.
- The Deer Herd Migration Area Overlay permit history has been adjusted for the geographic area of the Overlay under General Plan 2030 compared to the existing General Plan. The geographic area assumed for the Overlay excludes Timber Mountain areas because Timber Mountain is a more restrictive land use designation and will dictate the allowed development intensity.

Note: Represents only residential growth. Non-residential development is not represented.

<table>
<thead>
<tr>
<th>Number of Dwelling Units Estimated for Purposes of 2030 Horizon Buildout</th>
<th># of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 30</td>
<td>425 units</td>
</tr>
<tr>
<td>31 - 100</td>
<td>Agriculture (1,050 units)</td>
</tr>
<tr>
<td>101 - 250</td>
<td>Timber Mountain (30 units)</td>
</tr>
<tr>
<td>251 - 750</td>
<td>Areas Designated for Non-Residential Use (0 units)</td>
</tr>
<tr>
<td>751 - 2700</td>
<td>Deer Herd Migration Area Overlay</td>
</tr>
</tbody>
</table>

a. Anticipated Development Projects

First, anticipated development projects likely to develop during the General Plan 2030 planning horizon were identified. As explained below, these projects include those that are already underway or in planning stages, and are hence likely to fully develop by 2030, as well as other known projects that are likely to begin development by 2030.

i. Specific Plans and Planned Unit Developments Underway

The following developer-initiated projects are already fully planned or in planning, and hence are considered as likely to fully develop within the General Plan 2030 planning horizon. They were included in the projected 2030 buildout estimate at 100 percent of their capacities.

♦ Rio D’Oro Specific Plan. A draft of this Specific Plan has been submitted to the County for review. The Land Use Element in General Plan 2030 would limit development of this Specific Plan to not more than 2,700 dwelling units and 30 acres of retail and office uses at a maximum FAR of 0.4. The Specific Plan application includes 2,700 dwelling units and 248,000 square feet of retail and office uses.

♦ Las Plumas Study Area, including the South Ophir Specific Plan. There is a Master Environmental Assessment (MEA) currently underway for the Las Plumas Study Area; this MEA assumes that approximately 1,750 dwelling units, 248,000 square feet of commercial uses, and 87,000 square feet of industrial uses will be developed in the Las Plumas MEA area by 2030. Buildout estimates in this EIR match the estimates used in the Las Plumas MEA, except that approximately 310 additional residential units are included for some parcels with the Mixed Use designation since these Mixed Use sites are identified as housing opportunity sites in the Housing Element.

♦ Tuscan Ridge Planned Unit Development (PUD). Landowners for this project have been in contact with County staff to discuss preliminary application submittals. Preliminary estimates for this PUD include the development of 165 dwelling units.
♦ **Paradise Summit PUD.** This PUD application has been filed with the County. The Paradise Summit PUD designation in the Land Use Element of General Plan 2030 would limit development of this PUD to not more than 335 dwelling units.

## ii. Other Specific Plans, Area Plans and Proposed Projects

Other anticipated development projects are likely to begin developing before 2030, but are not expected to fully build out by 2030. The assumed level of growth for each of these projects by 2030 is based on market trends, development history, and County staff’s knowledge of the projects and development areas, and is documented in Table 3-5. This section summarizes the full capacities of these projects. The assumed level of growth shown in Table 3-5 is a percentage of the full capacities presented below.

♦ **Berry Creek Area Plan.** The vision for this area in the Land Use Element of General Plan 2030 would limit development to not more than 300 new dwelling units and 20 acres of retail and office uses at a maximum FAR of 0.4.

♦ **Upper Stilson Canyon Specific Plan.** The vision for this area in the Land Use Element of General Plan 2030 would limit development to not more than 300 new dwelling units.

♦ **Doe Mill/Honey Run Specific Plan.** The vision for this area in the Land Use Element of General Plan 2030 would allow mixed residential development and some commercial uses. Preliminary information indicates that approximately 1,500 new dwelling units could be constructed and 30 acres could be used for retail or office uses at a maximum FAR of 0.4.

♦ **Southeast Paradise Specific Plan.** This Specific Plan is being prepared by the Town of Paradise, and it extends into unincorporated Butte County. The Town anticipates that approximately 800 new dwelling units and 5 acres of new retail uses will be allowed.
♦ **Stringtown Mountain Specific Plan.** The vision for this area in the Land Use Element of General Plan 2030 would limit development to not more than 2,700 new dwelling units.

♦ **Garden Drive Research and Business Park.** A developer has expressed interest in developing this approximately 100-acre area for research and business park uses at a maximum FAR of 0.5.

♦ **Paradise Urban Reserve Specific Plan.** The Town of Paradise envisions this area to be a future growth area. General Plan 2030 would maintain the existing Paradise Urban Reserve policies until a future Specific Plan is developed by the Town of Paradise.

b. **2030 Development Areas**

In addition to the anticipated development projects discussed in Section F.2.a, this EIR also identifies other areas where additional development is likely to occur over the next 20 years. These “2030 development areas” include study areas that were evaluated during the land use alternatives process and established unincorporated communities where urbanization has already occurred and is expected to continue in the future. The study areas that are included in the 2030 development areas are depicted in Figure IN-2 of General Plan 2030, and described further in Chapter 5, Alternatives.

♦ **Alternatives Study Areas.** Many of these 2030 development areas are the same study areas that were evaluated as part of the land use alternatives phase during preparation of General Plan 2030. During the creation of land use alternatives in Meeting Series #2/3, members of the public, the CAC, Planning Commission and Board of Supervisors provided input on the boundaries of the study areas evaluated for each land use alternative. Many of these study areas were identified because they are areas where growth and development is likely to occur or where some participants wanted to consider a change in the existing General Plan land use designation. The study areas that include potential for development based on the General Plan 2030 land use map are considered 2030 development areas. Note that some of the alternatives study areas are accounted for under Section F.2.a, Anticipated Development Projects, and
are excluded from this category of 2030 development areas. In addition, the Bell Muir study area was incorporated into the larger Chico area, which is discussed as an Established Unincorporated Community, below.

♦ Established Unincorporated Communities. There are a number of unincorporated communities that were not designated as study areas that are identified as 2030 development areas. Although development pressure in most of these communities is relatively low, they are the types of already-urbanized locations to which General Plan 2030 directs future growth. Established unincorporated communities that include potential for development based on the General Plan 2030 land use map are considered 2030 development areas. The established unincorporated communities that are not General Plan study areas but which are considered for development are included in Table 3-5 under the heading considered “2030 Development Areas.”

c. Remaining Land Use Designations
For areas that are outside of the identified anticipated development projects and 2030 development areas, this EIR projects future development based on individual land use designations. The relevant land use designations are High Density Residential, Agriculture, Timber Mountain, and the Deer Herd Overlay.

♦ High Density Residential-Designated Land. Most land designated High Density Residential (HDR) will be targeted for development to meet the Regional Housing Needs Allocation (RHNA) requirements for the Housing Element Update. The only exception is an approximately 15-acre vacant parcel located in the Las Plumas Study Area. As noted in Section F.2.a.i, there is an MEA currently underway for the Las Plumas Study Area. Because this MEA does not account for full development of the HDR parcel, and because buildout estimates in this EIR, with the exception of the Las Plumas Study Area Mixed Use sites, match the estimates used in the Las Plumas MEA, this 15-acre parcel is not included in the RHNA inventory. In order to meet the RHNA requirements, the remaining HDR-designated lands would need to develop at the maximum allowed 20 dwelling units per acre. There are a total of 75 acres desig-
nated HDR under General Plan 2030, 20 acres of which are vacant, aside from the Las Plumas HDR parcel discussed above. This EIR assumes that 100 percent of the development potential on HDR-designated sites will develop by 2030, resulting in an expectation of approximately 400 new units.

♦ Agriculture-, Timber Mountain- and Deer-Herd Overlay-Designated Land. Projected 2030 buildout in agricultural, timber and deer herd migration areas outside of development areas or specific potential development projects was estimated based on building permit data for the past ten years. This EIR assumes that the same trend in the number of permits for new single-family homes on agricultural, timber and deer herd migration area parcels will continue through 2030, which results in a total of 74 units per year or approximately 1,480 units through 2030.

There are scattered lands with other designations that allow development outside of the anticipated development projects, 2030 development areas, and these “remaining land use designations.” However, this EIR does not anticipate that there will be significant levels of development in these areas.

3. Assumptions Applied Countywide

In assigning development to specific areas, the following assumptions were used:

♦ Parcels that are already fully developed were removed from consideration, since these parcels have already reached buildout. “Fully developed” parcels were considered to be parcels with an improvement-to-land (I/L) ratio of 0.4:1 or greater.19

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19 The I/L ratio is the relationship of a property’s improvement value to its land value. For example, a lot worth $100,000 that is improved with a building worth $40,000 would have an I/L ratio of 0.4:1. When a property has a low I/L ratio, it is considered to be “underutilized.” Since a landowner may realize increased value from additional development on an underutilized site, these sites are often considered for more intensive development.
♦ Existing development on underutilized parcels that are expected to redevelop was estimated using the County Assessor’s land use data. Existing residential units and commercial or industrial square footage was subtracted from the total development potential in order to estimate the net new development.

♦ In areas with a Mixed Use land use designation under General Plan 2030, the following mix of uses was assumed:

- 75 percent of the area would be developed with only residential uses at a density of 20 du/ac.
- 15 percent of the area would be developed with a mix of both residential and retail/office, with a residential density of 20 du/ac and a 0.5 FAR for retail/office.
- 10 percent of the area would be developed with retail/office uses at a 0.5 FAR.

♦ In areas with an Agricultural Services land use designation under General Plan 2030, the following mix of uses was assumed:

- 60 percent of the area would be developed with industrial uses at a 0.5 FAR.
- 40 percent of the area would be developed with commercial uses at a 0.5 FAR.

The projected 2030 buildout factored in assumptions about the actual density and intensity at which development is likely to occur, since developers often build a variety of product types, some of which could be at a lower density than the maximum allowed. This EIR assumes that only a portion of the maximum allowed density will be built, as shown in Table 3-6. As indicated in the table, it is typically more likely that a low-density project will be built at the maximum allowed density and less likely that a high-density project will be built at the maximum allowed density, due to the logistics of constructing more intense development and patterns of past development in Butte County.
TABLE 3-6  **MAXIMUM ALLOWED DENSITIES AND INTENSITIES**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Maximum Allowed Density</th>
<th>“Actual” Density Factor Applied</th>
<th>Assumed Actual Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Conservation</td>
<td>1 du/40 ac</td>
<td>80%</td>
<td>.02 du/ac</td>
</tr>
<tr>
<td>Rural Residential</td>
<td>1 du/5 ac</td>
<td>80%</td>
<td>0.16 du/ac</td>
</tr>
<tr>
<td>Very Low Density Residential</td>
<td>1 du/ac</td>
<td>80%</td>
<td>0.8 du/ac</td>
</tr>
<tr>
<td>Low Density Residential</td>
<td>3 du/ac</td>
<td>80%</td>
<td>2.4 du/ac</td>
</tr>
<tr>
<td>Medium Density Residential</td>
<td>6 du/ac</td>
<td>60%</td>
<td>3.6 du/ac</td>
</tr>
<tr>
<td>Medium High Density Residential</td>
<td>14 du/ac</td>
<td>60%</td>
<td>8.4 du/ac</td>
</tr>
<tr>
<td>High Density Residential</td>
<td>20 du/ac</td>
<td>100%</td>
<td>20 du/ac</td>
</tr>
<tr>
<td>Foothill Area Residential</td>
<td>1 du/ac</td>
<td>80%</td>
<td>0.8 du/ac</td>
</tr>
<tr>
<td>Retail/Office</td>
<td>0.4 FAR</td>
<td>75%</td>
<td>0.3 FAR</td>
</tr>
<tr>
<td>Mixed Use</td>
<td>20 du/ac and 0.5 FAR</td>
<td>75%</td>
<td>15 du/ac and .38 FAR</td>
</tr>
<tr>
<td>Recreation Commercial</td>
<td>0.4 FAR</td>
<td>75%</td>
<td>0.3 FAR</td>
</tr>
<tr>
<td>Research and Business Park</td>
<td>0.5 FAR</td>
<td>60%</td>
<td>0.3 FAR</td>
</tr>
<tr>
<td>Industrial</td>
<td>0.4 FAR</td>
<td>75%</td>
<td>0.3 FAR</td>
</tr>
<tr>
<td>Agriculture Services</td>
<td>0.5 FAR</td>
<td>75%</td>
<td>0.38 FAR</td>
</tr>
</tbody>
</table>

Note: du/ac = dwelling units per acre.

**G. Maximum Theoretical Buildout**

The projected 2030 buildout is a realistic estimate of the amount, type and location of development and conservation that is likely to occur under General Plan 2030. Therefore, as discussed in Section F, the analysis in this EIR
assumes this projected 2030 buildout is the most “reasonably foreseeable” outcome of General Plan 2030.

The projected 2030 buildout is less than the maximum theoretical buildout that would be possible under General Plan 2030. Maximum theoretical buildout means the development of every parcel with the maximum amount of development allowed under General Plan 2030. The maximum theoretical buildout of the unincorporated county includes the following:

- 61,100 new dwelling units
- 150,900 new residents
- 19.1 million square feet of new retail/office space
- 19.4 million square feet of new industrial space

It is extremely unlikely that the maximum theoretical buildout allowed under General Plan 2030 would ever occur, even over hundreds of years, because not every parcel that is allowed to develop will develop, and not every parcel that develops will be built out to the maximum allowed under General Plan 2030. Moreover, it is anticipated that Butte County will adopt an updated General Plan by or before 2030. Although there is no specific statutory schedule for General Plan updates, the California Supreme Court has noted that “local agencies must periodically review and revise their general plans as circumstances warrant.”

H. Airport Land Use Compatibility Plan Override

The Butte County Airport Land Use Commission (ALUC) is charged with promoting land use compatibility around the county’s airports in order to minimize public exposure to excessive noise and safety hazards. This is primarily accomplished through the preparation and periodic update of an ALUCP, the most recent of which was adopted in 2000. The ALUCP encompasses the four principal airports in the county: Chico Municipal Air-

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port, Oroville Municipal Airport, Paradise Skypark Airport and the Ranchaero Airport. Public Utilities Code Section 21676 requires that the Butte County General Plan be in conformance with the ALUCP, unless the Board of Supervisors makes specific findings to overrule the ALUCP or portions of it.

General Plan 2030 includes land use designations that are not consistent with the Airport Land Use Compatibility Zones included in the ALUCP. In general, General Plan 2030 would allow more residential units to be built than would be allowed by the ALUCP within the Airport Land Use Compatibility zones. General Plan 2030 would not allow a different type of use or increased heights above what is allowed under the ALUCP. The specific inconsistencies between the land use designations in General Plan 2030 and the Airport Land Use Compatibility Zones in the ALUCP are as follows:

♦ **Chico Municipal Airport:** The VLDR land use designation, which allows from 1 dwelling unit per 5 acres to 1 dwelling unit per acre, is inconsistent with the B1 Compatibility Zone. The VLDR land use designation would be inconsistent with B2, C and C1 Compatibility Zones unless the zoning requires a 5-acre minimum. The VLDR land use designation is inconsistent with C2 Compatibility Zone.

♦ **Oroville Municipal Airport:** The Rural Residential land use designation, which allows up to 1 dwelling unit per 5 acres, would be considered inconsistent with the B1 Compatibility Zone, unless the zoning requires a 10-acre minimum.

♦ **Ranchaero Airport:** The VLDR, LDR and MDR land use designations are inconsistent with the B1 and B2 Compatibility Zones. There are two parcels in the C Compatibility Zone which are designated as VLDR. This designation would be inconsistent.

♦ **Paradise Skypark Airport:** The Rural Residential land use designation, which allows up to 1 dwelling unit per 5 acres, would be considered inconsistent with the B1 Compatibility Zone, unless the zoning requires a 10-acre minimum. In addition, the VLDR land use designation is incon-
sistent with the C Compatibility Zone, unless the zoning requires a 5-acre minimum.

Therefore, in order to adopt General Plan 2030, the Board of Supervisors must also override the ALUCP. Implementation of the ALUCP override would have potential land use impacts, which are discussed in Chapter 4.9, Land Use.

I. **Intended Uses of the General Plan**

As mentioned at the beginning of this chapter, this programmatic EIR is intended to review potential environmental impacts associated with the adoption and implementation of the Butte County General Plan 2030 and ALUCP override, and determine corresponding mitigation measures, as necessary. Subsequent projects will be reviewed by the County for consistency with General Plan 2030, the ALUCP override and this EIR, and adequate project-level environmental review will be conducted as required by CEQA. Projects successive to this EIR could include the following:

- Approval and funding of major projects and capital improvements.
- Issuance of permits and other approvals necessary for implementation of the Butte County General Plan 2030.
- Future Specific Plan, Planned Unit Development, and Area Plan approvals.
- Property rezoning consistent with General Plan 2030.
- Development Plan approvals, such as tentative maps, variances, conditional use permits and other land use permits.
- Permit issuances and other approvals necessary for public and private development projects.
- Development Agreement process and approvals.
4.0 Environmental Evaluation

This chapter consists of 15 sections that evaluate the environmental impacts of the proposed General Plan 2030 and Airport Land Use Compatibility Plan (ALUCP) override. In accordance with Appendix G of the CEQA Guidelines, the potential environmental effects of the proposed project are analyzed for the following environmental issue areas:

♦ Aesthetics
♦ Agriculture
♦ Air Quality
♦ Biological Resources
♦ Cultural Resources
♦ Geology, Soils, and Mineral Resources
♦ Hazards and Safety
♦ Hydrology and Water Quality
♦ Land Use
♦ Noise
♦ Population and Housing
♦ Public Services and Recreation
♦ Transportation and Circulation
♦ Utilities
♦ Greenhouse Gas Emissions

A. Format of the Environmental Evaluation

Each section in Chapter 4 generally follows the same format and consists of the following subsections:

♦ The Regulatory Framework subsection contains an overview of the federal, State and local laws and regulations applicable to each environmental review topic.

♦ The Existing Conditions subsection describes current conditions with regard to the environmental factor reviewed.

♦ The Standards of Significance subsection tells how an impact is judged to be significant in this EIR. These standards are based on the CEQA
Guidelines and other regulatory criteria where noted. In some cases, the County has modified the standards to be germane to a General Plan EIR.

- The *Impact Discussion* gives an overview of potential impacts of the proposed project and tells why impacts were found to be significant or less than significant. This section also includes a discussion of cumulative impacts of the proposed project.

- The *Maximum Theoretical Buildout* subsection provides a brief discussion about potential impacts of the proposed project based on maximum theoretical buildout. This section is provided for information purposes only, and this EIR does not make findings based on maximum theoretical buildout.

- The *Impacts and Mitigation Measures* subsection lists identified impacts resulting from implementation of the proposed General Plan 2030 and suggested measures that would mitigate each impact, where such measures are available.

In Sections 4.1 through 4.15, each numbered impact is considered significant prior to mitigation. Mitigation measures have been suggested that would reduce significant impacts to the maximum extent feasible. Following an identified mitigation measure, there is a statement whether the mitigation would reduce the impact to less than significant, or whether it would remain significant and unavoidable.

### B. Cumulative Impact Analysis

Section 15130 of the CEQA Guidelines requires an EIR to discuss cumulative impacts of a project when the project’s incremental effect is cumulatively considerable. A cumulative impact consists of an impact created as a result of the combination of the project evaluated in the EIR together with other reasonably foreseeable projects causing related impacts.
In the case of an area-wide planning document such as a General Plan, the “project evaluated in the EIR” is development within the unincorporated county. “Cumulative impacts” occur from development under General Plan 2030 within the unincorporated county, combined with effects of development on lands in the incorporated portions of Butte County and adjacent counties.

This EIR will provide the cumulative context for future, individual projects. After this EIR is certified, future projects processed with a Negative Declaration or Mitigated Negative Declaration pursuant to CEQA will rely on this EIR for the cumulative analysis.

The cumulative impacts analyses are included in the Impact Discussions in Sections 4.1 to 4.15.

1. Geographic Area for Cumulative Analysis
Cumulative impacts may occur over different geographic areas for different types of analyses. The cumulative discussions in Sections 4.1 through 4.15 explain the geographic scope of the area affected by each cumulative effect (e.g. watershed or air basin). The geographic area considered for each cumulative impact depends upon the impact that is being analyzed. For example, in assessing air quality impacts, all development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions are the best tool for determining the cumulative effect. For most resource issues, the cumulative context evaluated in this EIR is Butte County and its neighboring counties.

2. Cumulative Projects Considered
In each of the following 15 sections, the cumulative impacts of General Plan 2030 and the ALUCP override take into account growth and development projected by General Plan 2030 for unincorporated Butte County, in combination with impacts from projected growth within the incorporated municipalities in Butte County and adjacent counties. Therefore, the geographic scope covered by the cumulative analysis is a larger area than the geographic
scope of the proposed project, which is unincorporated Butte County. As described in Chapter 6, the projected growth in other jurisdictions was estimated based on planning documents and conversations with the applicable city or county’s planning staff. In each section of Chapter 4, the cumulative impacts discussion is based on the cumulative development described in Chapter 6.
4.1 AESTHETICS

This chapter discusses the existing aesthetic character of Butte County and evaluates the potential impacts to aesthetics associated with General Plan 2030 and the Airport Land Use Compatibility Plan (ALUCP) override. The following evaluation assesses visual character, scenic vistas, scenic highways, and light and glare resulting from the spatial location of development that would be allowed by General Plan 2030.

A. Regulatory Framework

This section summarizes key State and County regulations and programs related to aesthetics in Butte County.


The California Building Code, Part 2 of Title 24 in the California Code of Regulations (CCR), is based on the 2006 International Building Code and combines three types of building standards from three different origins:

- Building standards that have been adopted by State agencies without change from building standards contained in the International Building Code.

- Building standards that have been adopted and adapted from the International Building Code to meet California conditions.

- Building standards, authorized by the California legislature, that constitute extensive additions not covered by the International Building Code that have been adopted to address particular California concerns.

The California Building Code also includes standards for outdoor lighting that are intended to improve energy efficiency, and to reduce light pollution and glare by regulating light power and brightness, shielding, and sensor controls.
2. California Scenic Highway Program
The California Scenic Highway Program, maintained by Caltrans, protects scenic State highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. Scenic State highway corridors designated by the State traverse land of outstanding natural beauty and are protected through local regulation of land use and development intensity, outdoor advertising, and other elements to preserve their scenic qualities. Highways eligible for designation as a State scenic highway are those that possess exceptional scenic qualities, but for which no scenic corridor protection program is in place, or for which no application for official scenic highway status has been made or approved by Caltrans.1 New routes are added to the State’s Master Plan through the action of the State Legislature.

3. Butte County Outdoor Lighting Standards
The Butte County Zoning Ordinance includes standards for outdoor lighting in residential areas. Section 24-241 requires that all outdoor lighting in residential areas “be located, adequately shielded and directed such that no direct light falls outside the property perimeter, or into the public right-of-way.”

B. Existing Conditions
Butte County is primarily a rural county with a landscape that speaks to its agricultural heritage. There are significant areas left as open space and used for agricultural purposes. The rural setting and unique geography of Butte County and its surrounding area have created a number of scenic vistas and corridors. These visual resources, as well as issues related to light and glare, are described in this section.

1. Visual Character and Scenic Vistas
In the rural setting of Butte County, prominent geographic features, such as mountains, hills, and rivers, give shape and profile to the natural environ-

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Climate, vegetation, and geography interact to differentiate sub-regional landscape units within the larger environmental context. The following discussion identifies five major categories of natural features which contribute to the overall visual and scenic quality of Butte County, including the valley, foothills, mountains, water bodies, and unique land forms. This section also highlights scenic vistas within each category.

a. Valley
The western portion of the county is located in the northeastern Sacramento River Valley. This valley area, which constitutes about 45 percent of the total county area, consists of the Sacramento River Valley floor and associated alluvial fans. The topography is gentle and flat, with elevations ranging from 60 to 200 feet above sea level. The level topography contributes to an open and uniform visual character, with natural waterways and canals, and associated levees, providing the most dominant landscape features. Natural vegetation in the area consists of valley grasslands, valley oak woodlands, fresh water marshes, and vernal pools.

Within the valley area, the most prominent human-made features are the scattered rural residential units and agricultural-industrial facilities such as processing plants, as well as the urban and suburban landscapes surrounding Chico, Gridley, Biggs, and Oroville. Many other small farming and ranching towns exist within the valley floor, and typically include a small town center surrounded by suburban and rural residential development.

From the open valley area, the most prominent scenic views are to distant features such as the Sutter Buttes to the south, the Coast Ranges to the west, and the county’s eastern foothills.

b. Foothills
The foothills form a transitional area between the valley floor on the west and the mountains on the east. This area, which occupies approximately 25 percent of the county’s land area, consists of extensive rolling foothills with elevations ranging from about 200 to 2,100 feet above sea level. Foothill oak
woodland, intermixed with chaparral, forms a transitional region between the valley grasslands and the mountain forests. In visual terms, the foothills form a distinct and highly attractive landscape which is more varied in topography and vegetation than the valley.

The visual character of the foothills is also less open than the valley, although viewpoints within the foothill area provide sweeping panoramas of the valley area and beyond. The rolling topography is frequently punctuated by distinctive clusters of oaks or land forms such as Table Mountain. In the spring, a unique and spectacular wildflower display occurs in this area after vernal pools have dried. The foothills also contain views of rivers, creeks, and ravines.

The foothills include vast grassland areas used for grazing, as well as significant rural, suburban, and urban development. The slopes east of Oroville have attracted both dispersed rural and concentrated urban development. In the Paradise area, development is dispersed over the ridges within the Town of Paradise and in the unincorporated communities to the north.

Because the vegetation in the foothills is primarily grasslands and chaparral, the foothills provide important scenic vistas along river and creek canyons and out across the Sacramento Valley, such as the views from the Skyway, Neal Road, and Highway 70.

c. Mountains
Approximately 30 percent of the county is a mountainous area formed by the southern portion of the Cascade Mountain Range and the western slopes of the Sierra Nevada. Elevations range from 2,100 feet to 8,000 feet above sea level. The mountain areas, and the foothill areas to the west, have deep-cut canyons, such as those seen along Butte Creek and parts of the eastern Feather River, which were formed by streams and rivers flowing westward from prehistoric glaciers. The combination of canyons and high mountains creates some of the county’s most visually stunning and environmentally sensitive lands. In addition to being topographically distinct, the mountain areas
are also clearly distinguished by dense and lush vegetation. The mountain areas are heavily forested with coniferous forest, mixed evergreen forest, montane meadow, and montane riparian environments.

The Feather River Canyon is famous not only for scenic quality but also for its human-made features such as the Western Pacific Railroad line, known as the “Feather River Route,” as well as water/power plants and historical gold mining.

The mountain areas are predominantly natural and highly scenic in character with dispersed human activities and modification throughout the area. The road network, including State highways, county roads, logging roads, and private residential roads, influences the area’s visual character, because most roads have required the alteration of topography or vegetation to accommodate them within the rugged terrain. Although no major urban settlements are located in the mountains, smaller communities are distributed throughout the area, including many former mining camps that are now centers of rural residential development or linked to the tourism industry.

Although scenic vistas are limited by the dense vegetation, there are scenic vistas of dramatic river and creek canyons and into the foothill regions in some parts of the mountain areas.

d. Waterbodies

Butte County has an abundance of water resources that contribute to the county’s visual character. Butte County is part of the Sacramento River Basin watershed, and is bounded by the Sacramento River on its west side. Numerous streams and rivers drain runoff from the Sierra Nevada and Cascades southwesterly across the county into the Sacramento River. Of these waterways, the most significant are Butte Creek, Big Chico Creek, and the North, Middle, and South Forks of the Feather River. These waterways are significant visual features within the county even though visual access to and from much of their length is relatively limited by steep terrain.
More dominant as visual features are the county’s surface water bodies. Few natural lakes exist in the county, although numerous reservoirs have been built to provide domestic and irrigation water, hydroelectric power, recreation, flood control, and watershed management. The most visually significant of the county’s water bodies, because of their location and size, are Lake Oroville and the Thermalito Forebay and Afterbay. Other reservoirs that are important local visual features include: Concow Reservoir, Paradise Lake, Magalia Reservoir, Philbrook Reservoir, Lake Madrone, Ponderosa Reservoir, Lake Wyandotte, Round Valley Reservoir, Lost Creek Reservoir, and Sly Creek Reservoir.

Scenic vistas to the surrounding foothills and mountains are available from Lake Oroville.

e. Unique Landforms and Habitat Areas
The county has a number of areas or features that, while a part of a larger landscape unit, are distinctive enough to contribute unique qualities. These areas and features generally consist of land forms and habitat areas. Unique land forms are those with geologic features that clearly distinguish them from their surroundings. As landmarks and reference points, they provide orientation and an immediate sense of place.

Unique land forms in Butte County include the steep river canyons of the mountain and foothill areas, such as Feather River Canyon, Chico Canyon, and Butte Creek Canyon. Table Mountain, a plateau of ancient volcanic rock located just north of Oroville, and the smaller steep-sided buttes in the Lime Saddle area give a signature character to the foothill area in the heart of the county, and various peaks throughout the eastern portion of the county, including Big Bar Mountain, Bald Rock Dome, and Sugarloaf, provide identifiable landmarks. As noted above, the Sutter Buttes, while located outside of Butte County, are important regional landscape forms because they can be seen from across the entire length of the county. Additionally, Mount Shasta, Mount Lassen, and the Coast Range can be seen from many portions of the county.

4.1-6
Especially unique habitat areas in the county that are also visually important include the seven large wildlife areas: the Big Chico Creek Ecological Preserve, Butte Creek Ecological Preserve, Table Mountain Reserve, Gray Lodge Wildlife Area, Oroville Wildlife Area, Sacramento River Wildlife Area, and Sacramento River National Wildlife Refuge. These areas, which provide habitat for migratory waterfowl and resident populations of smaller mammals and birds, also provide large natural areas of marsh, wetlands, grasslands, and stands of mature trees, distinguishing them from the cultivation and development that mark surrounding valley lands. In addition to these large discrete areas, there are also many wetlands and riparian areas along the Sacramento River that contribute to an overall visual character of healthy, natural, lush vegetation.

2. Scenic Highways
This section describes various scenic highways and corridors either officially designated by the State, in the County’s 1977 Scenic Highway Element, or containing the Scenic Highway zoning designation in the County’s existing Zoning Ordinance.

a. State Scenic Highways
Although there are no officially designated State scenic highways in Butte County, Highway 70 north of the intersection with Highway 149 is included on the State’s Master Plan and is considered an eligible State scenic highway.

b. County Scenic Highways and Corridors
The 1977 Scenic Highway Element recognizes Highway 70 through the Feather River Canyon and a portion of Highway 32 north of Forest Ranch as County scenic highways.

c. Scenic Highway Zoning
In the existing Zoning Ordinance, scenic routes and an area extending 350 feet from the centerline are zoned Scenic Highway. These sectors include portions of Highway 32 north of Chico, Highway 70 north of the Highway
149 intersection, Highway 191, Highway 162 near Lake Oroville, the Skyway through Butte Creek Canyon, Forbestown Road, and Lumpkin Road.

3. Light and Glare
Light pollution refers to all forms of unwanted light in the night sky, including glare, light trespass, sky glow, and overlighting. Views of the night sky are an important part of the natural environment, particularly for a rural to semi-rural area, such as Butte County. Excessive light and glare can also be visually disruptive to humans and nocturnal animal species, and often indicate an unnecessarily high level of energy consumption. Current sources of light in Butte County include exterior lighting on residential and commercial buildings, street lights, and billboards and other signage.

Current occurrences of glare are mainly a result of the sun or street lighting reflecting off of large expanses of concrete or other light-colored surfaces, such as parking lots, wide streets, and warehouse rooftops. Glass and other reflective surfaces can also be a source of glare.

C. Standards of Significance
General Plan 2030 and the ALUCP override would have a significant aesthetics impact if they would:

♦ Have a substantial adverse effect on a scenic vista.
♦ Substantially degrade the view from a scenic highway, including, but not limited to, trees, rock outcroppings, and historic buildings.
♦ Substantially degrade the existing visual character or quality of Butte County.
♦ Expose people to substantial light or glare.
D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative aesthetic impacts that could occur as a result of implementation of General Plan 2030. Implementation of the ALUCP override would have no aesthetic impact in Butte County, and is not discussed further in this section.

1. Project Impacts
   a. Have a substantial adverse effect on a scenic vista.

   Development allowed by General Plan 2030 could occur within areas that would affect scenic vistas. In particular, development in valley and foothill areas that are visible parts of vistas from various vantage points within the county could adversely affect scenic vistas. However, General Plan 2030 includes goals and policies intended to protect scenic resources, direct new development to urbanized areas, and preserve agriculture and open spaces areas.

   Conservation and Open Space Goal COS-17 is to maintain and enhance the quality of Butte County’s scenic and visual resources. In support of this goal, Policy COS-P17.1 requires that views of Butte County’s scenic resources, including water features, unique geologic features, and wildlife habitat areas, be maintained. Policy COS-P17.2 limits development along scenic ridgelines in Butte County for the purpose of protecting and enhancing the aesthetic qualities of ridgeline areas, and to preserve natural features that contribute to the county’s scenic resources and unique sense of place.

   The land use map in the General Plan 2030 Land Use Element, as well as its supporting policies under Goal LU-1, conserve large areas for open space and agricultural uses and focus development within existing urbanized areas and unincorporated communities. Policy LU-P15.2 requires that new urban development be primarily located in or immediately adjoining already urbanized areas. In addition, Goal LU-13 and its supporting policies maintain the Chico Area Greenline, which acts as an urban growth boundary and limits urban development from extending westward from the Chico area. More detailed information about the preservation of open space and agricultural land in its existing character is provided in Section 4.2, Agriculture, of this EIR.
Together, these goals and policies would reduce potential scenic vista impacts from General Plan 2030 to a *less-than-significant* level.

b. Substantially degrade the view from a scenic highway, including, but not limited to, trees, rock outcroppings, and historic buildings.

As stated in Section B.2, there are no State-designated scenic highways in Butte County. The portions of Highways 70 and 32 that were designated as scenic highways by the 1977 Butte County Scenic Highway Element would be maintained as County-designated scenic highways under General Plan 2030, as shown in Figure COS-8 of General Plan 2030.

Development under General Plan 2030 could occur within areas that would affect County-designated scenic highways. However, General Plan 2030 includes goals, policies, and actions that would preserve the views from scenic highways into the future.

In addition, Conservation and Open Space Element Goal COS-18 would protect and enhance scenic areas adjacent to and visible from highways for enjoyment by residents and visitors. This goal is supported by Policy COS-P18.1 and Action COS-A18.1, which instruct the County to review its scenic highways program and consider designating new scenic corridors based on a consideration of factors such as an area’s scenic characteristics, including vista points, geologic resources, native plant and animal species, waterways, historic resources, agricultural, timber, and recreation uses. Furthermore, Policy COS-P18.3 requires utility companies to choose the least conspicuous locations for distribution lines, so as to avoid impacts to scenic corridors where there is reasonable choice.

The goals, policies, and actions in General Plan 2030 would reduce potential scenic highway impacts from General Plan 2030 to a *less-than-significant* level.

c. Substantially degrade the existing visual character of Butte County.

As described in Section B, Butte County’s existing visual character comes from its varied topography, open space areas, waterbodies, and unique land-
forms, as well as the character of its agricultural uses and rural, suburban, and urban neighborhoods. Implementation of General Plan 2030 would allow ongoing growth and redevelopment in Butte County’s established community areas, and the extension of growth on some sites and into some areas that are currently undeveloped.

There are two primary ways in which General Plan 2030 could influence the future visual character and quality of Butte County. First, development on a significant amount of land that is currently undeveloped could result in a significant change to the visual character and quality of the county. The second way that the proposed General Plan 2030 could affect the visual character and quality of Butte County is through a change in the form and appearance of new development within existing neighborhoods.

However, as described below, General Plan 2030 includes a range of goals and policies that seek to direct growth into already-urbanized areas, support the visual qualities and character of the county, and achieve a balance between allowing new development and preserving Butte County’s valued open spaces and scenic resources.

As discussed in Section D.1.a, Conservation and Open Space Goal COS-17 and its supporting policies work to maintain and enhance the quality of Butte County’s scenic and visual resources. In addition, the land use map in the Land Use Element, its supporting policies under Goal LU-1, Policy LU-P15.2, and Goal LU-13 and its supporting policies preserve large areas for open space and agricultural uses and focus development within existing urbanized areas and unincorporated communities.

Development under General Plan 2030 would avoid significant impacts on the visual character of existing communities due to Policy LU-P4.1, which requires that the integrity and stability of existing residential neighborhoods be promoted and preserved. In addition, the Land Use Element supports community planning efforts that would preserve the character of these communities through Policy LU-P2.3, which supports planning efforts in unin-
corporated communities by providing knowledge, time, and materials to community efforts, and Policy LU-P2.4, which engages unincorporated communities in community planning processes to set a community vision, develop Area Plans and potentially urban growth boundaries, community boundaries, and spheres of influence (SOIs).

Together, these goals and policies set a framework that would balance open space preservation with new development allowed under General Plan 2030, and would ensure that new development preserves the visual character and quality of Butte County. The impact to visual character and quality would therefore be less than significant.

d. Expose people to substantial light or glare.
Development under General Plan 2030 could increase the amount of light and glare through the installation of exterior lighting on new residential and commercial development. However, as discussed in Section A.3 above, the Butte County Building Code and Zoning Ordinance regulate light power and brightness, shielding, and sensor controls, and require light fixtures to be designed and sited so as to minimize light pollution, glare, and light trespass into adjoining properties. Therefore, General Plan 2030 would have a less-than-significant impact related to light and glare.

2. Cumulative Impacts
General Plan 2030 could result in changes to the visual character and quality of Butte County through development of undeveloped areas and/or changes to the character of existing communities. However, as outlined in Section D.1, goals, policies, and actions in the proposed General Plan 2030, combined with other State and local regulations, would reduce project-level aesthetic impacts to a less-than-significant level.

When combined with the overall growth trends within Butte County and adjacent counties, the conversion of the region’s visual quality from a rural, agricultural character to a more urban feel could result in a cumulatively significant aesthetic impact. However, within the timeframe of General Plan
2030, it is unlikely that the Butte County region would be significantly converted from agricultural land and open space to urban uses. Furthermore, the other counties in the Butte County region, where conversion from open space and agricultural land to urban uses is of most concern, have adopted General Plan policies that direct growth to existing urbanized areas and/or protect agricultural land. For instance, Yuba County’s 1996 General Plan includes Goal 1-LUG and its associated objectives, policies, and implementation strategies that direct growth to existing communities and approved specific and community plan areas. In addition, Glenn County’s 1993 General Plan includes Goal NRG-1 and its associated policies and implementation strategies, programs, and priorities that preserve agricultural land.

In addition to local policies to avoid urbanization of open space and agricultural lands, State, and local scenic highway programs would mitigate potential impacts along scenic corridors by preserving views and open space land.

Light pollution has the potential to become an issue of increasing concern in the region as new development contributes additional outdoor lighting installed for safety and other reasons. Butte County may be adversely affected not only by light pollution from development within the unincorporated area, but also from sky glow associated with the ongoing urbanization of cities within Butte County and in surrounding areas, such as Yuba City. However, future development in all jurisdictions will be subject to the California Building Code standards that would prevent potential impacts associated with light and glare.

Overall, the cumulative aesthetic impact would be less than significant.

E. Maximum Theoretical Buildout

The maximum theoretical buildout allowed under General Plan 2030 would include significantly more development than the projected 2030 buildout analyzed in Section D in terms of both the amount and the extent of development. Therefore, the potential for impacts to aesthetics would increase.
However, as discussed in Chapter 3, it is extremely unlikely that maximum theoretical buildout would ever occur under General Plan 2030. Therefore, an analysis of maximum theoretical buildout is not required by CEQA.

F. Impacts and Mitigation Measures

Since there are no significant impacts related to aesthetics as a result of General Plan 2030, no mitigation measures are required.
This chapter discusses agricultural resources in Butte County and evaluates the potential agricultural impacts associated with General Plan 2030 and the Airport Land Use Compatibility Plan (ALUCP) override. The following evaluation assesses farmland conversion, conflicts with Williamson Act contracts, and changes in the environment that could contribute to farmland conversion resulting from the spatial location of development that would be allowed by General Plan 2030.

A. Regulatory Framework

This section summarizes key State and County regulations, policies and programs pertaining to agriculture in Butte County.

1. Farmland Mapping and Monitoring Program

Within the California Natural Resources Agency, the State Department of Conservation provides services and information that promote informed land-use decisions and sound management of the State’s natural resources. The Department manages the Farmland Mapping and Monitoring Program (FMMP), which supports agriculture throughout California by developing maps and statistical data for analyzing land use impacts to farmland. Every two years, the FMMP publishes a report for each county in the State in which agricultural land is rated on its production potential according to the following classifications:¹

- **Prime Farmland** has the best combination of physical and chemical features able to sustain long-term agricultural production. Prime Farmland has the soil quality, growing season and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agriculture production at some time during the four years prior to the mapping date.

Farmland of Statewide Importance is similar to Prime Farmland, but with minor shortcomings, such as steeper slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Unique Farmland consists of lesser quality soils used for the production of the State’s leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been farmed at some time during the four years prior to the mapping date.

Grazing Land is the land on which the existing vegetation is suited to the grazing of livestock.

Urban and Built-Up Land is occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment and water control structures.

Other Land is land not included in any other mapping category. Common examples include low density rural developments, brush, timber, wetlands, riparian areas not suitable for livestock grazing, confined livestock, poultry, aquaculture facilities, and strip mines. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

Water is used to describe perennial water bodies with an extent of at least 40 acres.

2. Williamson Act
The California Land Conservation Act, better known as the Williamson Act, conserves agricultural and open space lands through property tax incentives and voluntary restrictive use contracts administered by the County under State regulations. Private landowners voluntarily restrict their land to agricultural and compatible open space uses under minimum 10-year rolling term contracts, with Counties and Cities also acting voluntarily. In return, re-
stricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value.²

3. **Open Space Lands Act (Government Code Section 65560 et. seq.)**

   California Government Code Section 65560 establishes the importance of preserving open space, including “for the assurance of the continued availability of land for the production of food and fiber,” and the responsibility of all Cities and Counties to plan for the preservation of open space. This section of the Government Code requires all Cities and Counties to prepare an Open Space Element of the local General Plan, which must cover the following six types of open space:

   - Open space for the preservation of natural resources;
   - Open space used for the managed production of resources, including but not limited to, forest lands, rangeland, agricultural lands and groundwater recharge areas;
   - Open space for outdoor recreation, including areas of outstanding scenic, historic and cultural value;
   - Open space for public health and safety, including, but not limited to earthquake fault zones, unstable soil areas, flood plains, watersheds, and high fire risk areas;
   - Open space in support of the mission of military installations; and
   - Open space for the protection of places, features, and objects significant to Native American tribes.

4. **Butte County Right-to-Farm Ordinance**

   Chapter 35 of the Butte County Municipal Code, also referred to as the Butte County Right-to-Farm Ordinance (Ord. No. 3965, § 1, 6-12-07), serves as a notification to owners, purchasers, residents and users of property adjacent to agricultural operations of potential issues at the agriculture-urban interface.

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The Right-to-Farm Ordinance declares that properly conducted agricultural operations on agricultural land are not subject to nuisance claims, assuming the operation was not already on record as a nuisance when the operation began. Information about the Right-to-Farm Ordinance is provided by the County to residents with an annual tax bill and when an application is submitted for development on or adjacent to agricultural land.

5. Agricultural/Residential Buffer Implementation Guidelines
The existing Butte County Zoning Ordinance requires a 300-foot buffer between agricultural and non-agricultural uses. To implement this requirement, and to provide guidance regarding requests for a determination of unusual circumstances, Butte County has prepared Agricultural/Residential Buffer Implementation Guidelines. The buffer must physically separate agricultural and non-agricultural uses and help to minimize potential conflicts. The County may make a determination of unusual circumstances based on criteria outlined in the Guidelines, in which case the buffer may take other forms or be of a lesser distance.

B. Existing Conditions

Butte County is located in the vast floodplain of the Sacramento River, an area that is particularly amenable to farming. The floodplains provide fertile, alluvial sediments with abundant nutrients. The majority of Butte County’s farmland is located in the area between the eastern bank of the Sacramento River and the foothills of the Southern Cascade and Sierra Nevada mountain ranges.

1. Agricultural Land Classifications
As mentioned in Section A.1, the State authority on agriculture pertaining to land use protection is the FMMP. The most recent FMMP data available for Butte County is from 2006. The agricultural land classifications from the 2006 FMMP data for Butte County are shown in Figure 4.2-1 and summarized in Table 4.2-1.
FIGURE 4.2-1


**Farmland Type**
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Grazing Land
- Other Land

**Transportation**
- Airports
- Greenline
- Highways
- Railroad
- Major Roads
- Sphere of Influence
- City/Town Limits
- County Boundary

**Legend**

**Figure 4.2-1 Agricultural Land**
According to the FMMP data, over 60 percent of Butte County is classified under one of the following agricultural categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Grazing Land. The majority of agricultural land in the county is Grazing Land, which occurs primarily in the mountain and foothill regions. Prime Farmland is located on the alluvial plain of the Sacramento River in the western portion of the county. Small areas classified as Farmland of Statewide Importance and Unique Farmland exist in the central, northwest, and southwest portions of the county.

### Table 4.2-1 Butte County Farmland, 2006

<table>
<thead>
<tr>
<th>Farmland Category</th>
<th>Acres</th>
<th>Percent of Total Land in Unincorporated County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prime Farmland</td>
<td>196,219</td>
<td>19%</td>
</tr>
<tr>
<td>Farmland of Statewide Importance</td>
<td>21,604</td>
<td>2%</td>
</tr>
<tr>
<td>Unique Farmland</td>
<td>24,235</td>
<td>2%</td>
</tr>
<tr>
<td>Grazing Land</td>
<td>407,678</td>
<td>40%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>649,736</strong></td>
<td><strong>63%</strong></td>
</tr>
</tbody>
</table>


2. **Williamson Act Land**

Much of the land classified as farmland by the FMMP is under a Williamson Act contract or other land easement. Approximately 220,000 acres were enrolled in Williamson Act contracts in 2007, which cover about one-third of the farmland in Butte County as mapped by the FMMP and over 20 percent of the entire county. Lands under Williamson Act contracts are shown in Figure 4.2-2.

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Active Williamson Act Contracts
Williamson Act Contracts in Non-Renewal Status
Airports
Greenline
Highways
Railroad
Major Roads
Sphere of Influence
City/Town Limits
County Boundary

Source: Butte County GIS, 2009.
To discontinue a Williamson Act contract, an owner may put land into “non-renewal” status (a 10-year progressive roll-out). For Butte County, the number of acres involved in the non-renewal process increased notably between 2006 and 2007. In 2006, a total of 1,711 acres were put into non-renewal status. This number increased to 10,560 acres the following year.4

C. Standards of Significance

General Plan 2030 and the ALUCP override would have a significant agriculture impact if they would:

♦ Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (or “farmlands of concern under CEQA”), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

♦ Conflict with a Williamson Act contract.

♦ Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmlands of concern under CEQA to non-agricultural use.

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative agriculture impacts that could occur as a result of implementation of General Plan 2030. Implementation of the ALUCP override would have no agriculture impact in Butte County and is not discussed further in this section.

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1. Project Impacts

a. Convert farmlands of concern under CEQA to non-agricultural use.

The land use map in General Plan 2030 protects the majority of the farmlands of concern under CEQA in Butte County through agricultural land use designations. Specifically, the General Plan land use designation of Agriculture would protect farmland from conversion to non-agricultural use because it does not allow non-agricultural uses, except when such uses are accessory to and support an on-going agricultural use. Although the Agriculture designation allows a single-family home, the land area devoted to such a use is minimal. In addition, a single-family home is an accessory use and beneficial to the continued agricultural use of the land by allowing farmers, ranchers or caretakers to live on the property under agricultural production. General Plan 2030 also establishes a Unique Agriculture Overlay designation near Oroville in which small-scale agriculture is protected and promoted.

However, General Plan 2030 would allow for some conversion of farmlands of concern under CEQA to non-agricultural use because they include non-agricultural designations on such lands. In addition, General Plan 2030 identifies roadway improvements, some of which are located on farmlands of concern. Approximately 4,700 acres of farmland of concern under CEQA are subject to conversion through non-agricultural land use designations. As shown in Figure 4.2-3, this farmland is scattered among parcels on the outskirts of Butte County’s incorporated municipalities and in the unincorporated communities. Conversion of farmland is summarized as follows:

- Approximately 1,860 acres of farmland surrounding Oroville would be designated for residential uses ranging from Foothill Residential and Rural Residential to Medium High Density Residential (1,740 acres), as well as Mixed Use (120 acres).

- Approximately 1,240 acres of farmland surrounding Chico would be designated for residential uses ranging from Foothill Residential and Rural Residential to Medium High Density Residential (890 acres), as well as Retail and Office (30 acres), Industrial (20 acres), Resource Conservation (50 acres) and Public (250 acres). In addition, approximately 3 acres of
farmland are designated for Agricultural Services. Although the Agricultural Services designation would support agriculture and would be beneficial to the continued agricultural use of the land, it could take agricultural land out of production.

- Approximately 980 acres of farmland surrounding Biggs and Gridley would be designated for residential uses ranging from Rural Residential to Medium High Density Residential (660 acres), as well as Retail and Office (10 acres), Industrial (30 acres), and Public (5 acres). In addition, approximately 280 acres of farmland are designated for Agricultural Services. As noted in the discussion about the Chico area above, the Agricultural Services designation could result in the loss of productive agricultural land.

- Approximately 340 acres of farmland surrounding the unincorporated communities of Durham and Dayton would be designated for Very Low Density Residential.

The remaining areas subject to conversion total approximately 280 acres and are dispersed throughout other unincorporated communities in Butte County.

Although General Plan 2030 would allow conversion of farmlands of concern under CEQA, the purpose of the General Plan’s Agriculture Element is to protect farmland from urbanization and to enhance the county’s agricultural industry. Agriculture Element Goal AG-2 and its supporting policies and actions seek to protect Butte County’s agricultural lands from conversion to non-agricultural uses. Policy AG-P2.1 directs the County to work with the Local Agency Formation Commission (LAFCO) to create and maintain a consistent approach to the conservation of agricultural land through the designation of reasonable and logical Sphere of Influence (SOI) boundaries. Policy AG-P2.3 limits redesignation and rezoning of agricultural land to an urban designation. Policy AG-P2.6 directs the County to use proactive land use techniques, such as clustered development and density bonuses, to retain and protect agricultural land. In addition, Action AG-A2.1 directs the County to
develop an agricultural mitigation ordinance that would help to mitigate potential losses of agricultural land. Additionally, agricultural lands west of Chico will be protected by the Chico Area Greenline through Goal LU-13 and its associated policies. Specifically, Policies LU-P13.4 and LU-P13.5 restrict non-agricultural land uses on the Agricultural Side of the Chico Area Greenline. In addition, Policy LU-P13.9 requires evidence of substantial benefits to the public in order to convert land on the Agricultural Side of the Greenline to urban land, as well as findings that no other lands exist that are reasonably available and suitable for the proposed development.

However, the designation of farmlands of concern under CEQA for non-agricultural uses in the General Plan 2030 land use map could lead to the conversion of such farmland to non-agricultural uses, regardless of these goals, policies, and actions. The location of agricultural parcels near existing urban and suburban areas generally limits their on-going viability for active agricultural activities. Nuisance complaints from neighbors, prohibitions on spraying pesticides and herbicides near sensitive receptors, vandalism and traffic all reduce the viability of working agricultural land in proximity to urban and suburban development. In addition, small agricultural parcels may no longer be viable for current agricultural practices. Placing or keeping an agricultural designation on these scattered parcels would not ensure on-going agricultural use.

In addition, placing or keeping an agricultural designation on parcels that are not viable for agricultural use is inconsistent with General Plan 2030 policies that promote economic opportunities. Placing or keeping an agricultural designation on parcels that are not viable for agricultural use, but are close to urban centers, would also direct development away from the urban centers, which is inconsistent with numerous General Plan 2030 policies encouraging a compact urban form. Therefore, placing or keeping an agricultural designation on these scattered parcels would make General Plan 2030 internally inconsistent.
Therefore, the proposed project would have a significant and unavoidable impact related to the conversion of farmlands of concern under CEQA to non-agricultural uses.

b. Conflict with a Williamson Act contract.

General Plan 2030 avoids conflicts with the majority of Williamson Act contracts. Of the 220,000 acres under Williamson Act contract within Butte County, General Plan 2030 designates all but 90 contracted acres with the Agriculture, Unique Agriculture Overlay, Timber Mountain, or Resource Conservation designations. These Williamson Act parcel conflicts are distributed throughout Butte County.

- Approximately 50 acres of Williamson Act contracted land located within the North Chico Specific Plan would be designated Very Low Density Residential.
- Approximately 35 acres of Williamson Act contracted land located along Highway 99 south of Chico would be designated Industrial.
- Approximately 5 acres of Williamson Act contracted land located near Bangor would be designated Foothill Residential and Rural Residential.

Of the 90 contracted acres that are not designated for agricultural uses, approximately 45 acres are already in non-renewal status. As a result of these non-agricultural designations, owners of farmland under Williamson Act contracts may be encouraged to file for non-renewal or early cancellation of their contracts in anticipation of developing their properties.

General Plan 2030 includes policies and actions to minimize conflicts with Williamson Act contracts. Agriculture Element Policy AG-P1.3 calls for the County to continue to work with landowners in establishing new and main-

5 Sections 51238.1(a) and (c)(3) of the California Government Code specify that the purpose of the Williamson Act is to preserve agricultural and open space land and support the use or conservation of natural resources. Therefore, Resource Conservation and Timber Mountain designations are consistent with the uses allowed under Williamson Act contracts.
taining existing Williamson Act contracts, and Action AG-A1.1 maintains County policies that address consistency with the Williamson Act.

Although General Plan 2030 would avoid most conflicts with Williamson Act contracts through the land use map, and although General Plan 2030 policies and actions would minimize conflicts with Williamson Act contracts, the proposed land use map includes residential or industrial designations for some areas that are under a Williamson Act contract. The parcels with Williamson Act conflicts are small parcels, and some are located close to existing urbanized areas or established unincorporated communities. Small agricultural parcels may no longer be viable for current agricultural practices. In addition, the location of agricultural parcels near existing urban and suburban areas generally limits their on-going viability for active agricultural activities. Nuisance complaints from neighbors, prohibitions on spraying pesticides and herbicides near sensitive receptors, vandalism and traffic all reduce the viability of working agricultural land in proximity to urban and suburban development. Therefore, placing or keeping an agricultural designation on these scattered parcels would not ensure on-going agricultural use as intended under the Williamson Act contract.

In addition, placing or keeping an agricultural designation on parcels that are not viable for agricultural use is inconsistent with General Plan 2030 policies that promote economic opportunities. Placing or keeping an agricultural designation on parcels that are not viable for agricultural use, but are close to urban centers, would also direct development away from the urban centers, which is inconsistent with numerous General Plan 2030 policies encouraging a compact urban form. Therefore, placing or keeping an agricultural designation on these parcels would make General Plan 2030 internally inconsistent.

Consequently, General Plan 2030 would result in a *significant and unavoidable* impact related to conflicts with existing Williamson Act contracts.
c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmlands of concern under CEQA to non-agricultural use.

General Plan 2030 would allow development that could result in potentially incompatible urban uses next to farms or ranches, creating circumstances that impair the productivity and profitability of agricultural operation, and could eventually lead farmers to take their land out of production. For example, complaints from new residents about noise, dust and chemical use from agricultural operations, and concerns of farmers and ranchers about increased vandalism, traffic, access difficulties and the introduction of domestic animals, can lower productivity. Adjacent urban development may also drive up land values, increasing the property tax burden for farmland not protected by Williamson Act contracts. In addition, as discussed in Chapter 6, CEQA-Required Assessment Conclusions, General Plan 2030 would induce growth in areas that are not currently designated for urban uses, including within agricultural areas.

As mentioned above, existing County programs support the continuation of working farmland and agricultural land. One of the most important of these is the County’s Right-to-Farm Ordinance. The Ordinance is intended to educate the public about the realities of living in a rural community surrounded by agricultural production activities and to indicate that these realities do not constitute nuisances that the County would support eradicating.

Furthermore, General Plan 2030 includes goals, policies, actions and regulations that reduce conflicts between agricultural operations and urban uses that could potentially result in farmland conversion. Agriculture Element Policy AG-P5.3 maintains the existing County requirement for a 300-foot buffer between agricultural and non-agricultural uses, and dictates that the buffer be provided on the non-agricultural side. Action AG-A5.1 directs the County to periodically update the buffer requirements in the Zoning Ordinance and Buffer Implementation Guidelines in order to reduce conflicts. In addition, the County’s Agricultural/Residential Buffer Implementation Guidelines
provide procedures for establishing a 300-foot buffer between agricultural and residential uses.

Other policies and actions under Agriculture Element Goal AG-5 seek to reduce conflicts between urban and agricultural uses, including Policy AG-P5.4, which prohibits land divisions that separate a farmer’s home from the agricultural land, and Action AG-A5.2, which directs the County to periodically update the Right-to-Farm Ordinance to reflect changing practices.

Together, these goals, policies, actions and regulations would avoid changes to the agricultural environment that would result in the conversion of farmlands of concern under CEQA to non-agricultural uses, resulting in a less-than-significant impact.

2. Cumulative Impacts
The California Department of Finance Demographic Research Unit forecasts that the Central Valley’s population will more than double by the year 2040 to almost 10 million people. According to the American Farmland Trust, if current land use trends continue, by 2040 nearly 900,000 acres of Central Valley farmland would be converted to urban uses and ranchette development and another 2 million or more acres of agriculture could be compromised by potential conflicts with nearby urban uses.

Development under General Plan 2030 would contribute to these cumulative agricultural impacts. Although General Plan 2030 goals, policies, actions and regulations described in Section D.1 would reduce and partially offset Butte County’s contribution to these impacts, the overall cumulative agricultural impact would remain significant. Because the amount of growth foreseen in the region and the decisions of surrounding counties regarding conversion of

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agricultural land are outside the control of Butte County, the impact is significant and unavoidable.

E. Maximum Theoretical Buildout

The maximum theoretical buildout allowed under General Plan 2030 would include significantly more development than the projected 2030 buildout analyzed in Section D. Under these conditions, both the amount and the extent of development would be increased, which would in turn increase the potential for agriculture impacts. However, as discussed in Chapter 3, it is unlikely that maximum theoretical buildout would ever occur under General Plan 2030, and an analysis of maximum theoretical buildout is not required by CEQA.

F. Impacts and Mitigation Measures

Impact AG-1: Although the goals, policies, actions and regulations of General Plan 2030 would reduce and partially offset the conversion of farmland, the proposed project designates approximately 4,700 acres of farmlands of concern under CEQA for non-agricultural uses.

These parcels are small, so they may no longer be viable for current agricultural practices. They are also located close to existing urbanized areas, which General Plan 2030 targets as appropriate locations for future growth. Placing or keeping an agricultural designation on these scattered parcels would make General Plan 2030 internally inconsistent. Therefore, this impact is significant and unavoidable.

Impact AG-2: Although the goals, policies, actions and regulations of General Plan 2030 would reduce and partially offset conflicts with Williamson Act contracts, the proposed project designates approximately 90 acres of lands with existing Williamson Act contracts for residential or industrial uses.
The parcels with Williamson Act conflicts are small, and many are located close to existing urbanized areas or established unincorporated communities, which General Plan 2030 targets as appropriate locations for future growth. Small parcels may no longer be viable for current agricultural practices. Placing or keeping an agricultural designation on these parcels would make General Plan 2030 internally inconsistent. Therefore, this impact is significant and unavoidable.

**Impact AG-3:** Although the goals, policies, actions and regulations of General Plan 2030 would reduce and partially offset regional agricultural impacts, the proposed project would contribute to cumulatively significant agricultural impacts in the region.

The amount of growth foreseen in the region and the decisions of surrounding counties regarding conversion of agricultural land are outside the control of Butte County. Therefore, this impact is significant and unavoidable.
This chapter discusses air quality in Butte County and evaluates potential local and regional air quality impacts associated with General Plan 2030 and the Airport Land Use Compatibility Plan (ALUCP) override. This chapter is based on both quantitative and spatial analyses, and was prepared using information from the California Air Resources Board, US Environmental Protection Agency, and the Butte County Air Quality Management District. Traffic conditions were modeled by the project traffic engineers, Fehr & Peers, using the CT-EMFAC, EMFAC2007, and CALINE4 computer models. Greenhouse gases are discussed in Section 4.15, Greenhouse Gas Emissions.

A. Regulatory Setting

The federal Clean Air Act (CAA) governs air quality in the United States and California. Air quality in the State is also governed by more stringent regulations under the California CAA. At the federal level, the US Environmental Protection Agency (EPA) administers the CAA, while the California CAA is administered by the California Air Resources Board (CARB) at the State level and by the Butte County Air Quality Management District (BCAQMD) at the regional and local levels.

1. Federal Laws and Regulations

The EPA is responsible for enforcing the federal CAA, as well as establishing the National Ambient Air Quality Standards (NAAQS). The NAAQS, which are discussed further in Section A.4, are required under the 1970 federal CAA and subsequent amendments. The EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships and certain types of locomotives. The agency also has jurisdiction over emission sources outside State waters, which are waters beyond the outer continental shelf, and establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by the CARB, as discussed in Section A.2.
2. State Laws and Regulations

In California, the CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for meeting the State requirements of the federal CAA, administering the California CAA, and establishing the California Ambient Air Quality Standards (CAAQS), which are discussed further in Section A.4. The California CAA, as amended in 1992, requires all air districts in the state to endeavor to achieve and maintain the CAAQS. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles.

CARB regulates mobile air pollution sources, such as motor vehicles, and is responsible for setting emission standards for vehicles sold in California and other sources, such as consumer products and certain off-road equipment. CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county levels.

3. Local Laws and Regulations

As a local air district, the BCAQMD, along with CARB, is responsible for implementing NAAQS and CAAQS. The Butte County Association of Governments (BCAG) is coordinating with the BCAQMD to implement strategies for air quality improvement through the Regional Transportation Plan, which is discussed in more detail in Chapter 4.13 of this EIR, Transportation and Circulation. Because of the regional nature of ozone (O₃) in the Sacramento Valley, the BCAQMD is also coordinating efforts with the Sacramento Valley Air Basin Control Council’s Technical Advisory Committee, the Sacramento Area Council of Governments, and the Sacramento Metropolitan Air Quality Management District.
4. Air Pollutants and Ambient Air Quality Standards

The NAAQS were established by the federal CAA of 1970 (amended in 1977 and 1990) for six criteria pollutants. These criteria pollutants include carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), particulate matter with a diameter less than 10 microns (PM₁₀), sulfur dioxide (SO₂) and lead (Pb). Recently, fine particulate matter less than 2.5 microns in diameter (PM₂.₅) was added as a criteria pollutant. Air quality studies generally focus on five pollutants that are most commonly measured and regulated: CO, O₃, NO₂, SO₂, and suspended particulate matter (i.e. PM₁₀ and PM₂.₅).

Pollutants regulated under the California CAA are similar to those regulated under the federal CAA. In many cases, California standards are more stringent than the national ambient air quality standards. Federal and State air quality standards are shown in Table 4.3-1. Both the national and California ambient air quality standards have been adopted by the BCAQMD, as discussed in Section A.3.

a. Carbon Monoxide

CO, a colorless and odorless gas, interferes with the transfer of oxygen to the brain. It can cause dizziness and fatigue, and can impair central nervous system functions. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. Automobile exhaust and residential wood burning in fireplaces and woodstoves emit most of the CO in Butte County. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. The highest CO concentrations in Butte County are typically recorded during the winter.

b. Ozone

Ground-level ozone, or O₃, is the principal component of smog. O₃ is not directly emitted into the atmosphere, but instead forms through a photo-
<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Time</th>
<th>State Standards</th>
<th>Federal Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8-hour</td>
<td>Primary&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Ozone</td>
<td></td>
<td>0.070 ppm&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.075 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(137 μg/m&lt;sup&gt;3&lt;/sup&gt;)&lt;sup&gt;d&lt;/sup&gt;</td>
<td>(147 μg/m&lt;sup&gt;3&lt;/sup&gt;)</td>
</tr>
<tr>
<td></td>
<td>1-hour</td>
<td>0.09 ppm</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(180 μg/m&lt;sup&gt;3&lt;/sup&gt;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8-hour</td>
<td>9.0 ppm</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10 mg/m&lt;sup&gt;3&lt;/sup&gt;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1-hour</td>
<td>20 ppm</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(23 mg/m&lt;sup&gt;3&lt;/sup&gt;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 ppm</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(180 μg/m&lt;sup&gt;3&lt;/sup&gt;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.030 ppm</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(57 μg/m&lt;sup&gt;3&lt;/sup&gt;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.18 ppm</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(339 μg/m&lt;sup&gt;3&lt;/sup&gt;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>0.03 ppm</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(80 μg/m&lt;sup&gt;3&lt;/sup&gt;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24-hour</td>
<td>0.04 ppm</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(105 μg/m&lt;sup&gt;3&lt;/sup&gt;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-hour</td>
<td>—</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>—</td>
<td>(1,000 μg/m&lt;sup&gt;3&lt;/sup&gt;)</td>
</tr>
<tr>
<td></td>
<td>1-hour</td>
<td>0.25 ppm</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(655 μg/m&lt;sup&gt;3&lt;/sup&gt;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>20 μg/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(arithmetic mean)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24-hour</td>
<td>50 μg/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>150 μg/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>12 μg/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15.0 μg/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24-hour</td>
<td>—</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35 μg/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Calendar quarter</td>
<td>—</td>
<td>1.5 μg/m&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>30-day average</td>
<td>1.5 μg/m&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Same as primary</td>
</tr>
<tr>
<td></td>
<td>Rolling 3-month average</td>
<td>—</td>
<td>0.15 μg/m&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Notes: Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis. 
(a) Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that state’s implementation plan is approved by the EPA. 
(b) Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. 
(c) ppm: parts per million. 
(d) μg/m<sup>3</sup>: Micrograms per Cubic Meter. 
(e) The national 1-hour O<sub>3</sub> standard was revoked by the US EPA on June 15, 2005. 
(f) The annual PM<sub>2.5</sub> standard was revoked by the US EPA on September 21, 2006 and a new PM<sub>2.5</sub> 24-hour standard was established. 
chemical reaction of reactive organic gases (ROG) and nitrogen oxides (NOx), which are known as O3 precursors. O3 levels are highest from late spring through autumn when precursor emissions are high and meteorological conditions are warm and stagnant.

Motor vehicles create the majority of ROG and NOx emissions in Butte County. Exposure to levels of O3 above current ambient air quality standards can lead to human health effects such as lung inflammation and tissue damage and impaired lung functioning. O3 exposure is also associated with symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthma symptoms. Outdoor workers, athletes, children, and others who spend large amounts of time outdoors during smoggy periods are at the greatest risk of these harmful health effects. Elevated O3 levels can reduce crop and timber yields, damage native plants, and damage materials such as rubber, fabrics, and plastics. In April 2005, CARB approved a new 8-hour standard of 0.070 parts per million (ppm) and retained the 1-hour O3 standard of 0.09 ppm after an extensive review of the scientific literature. Evidence from the studies indicates that significant harmful health effects could occur among both adults and children if exposed to levels above these standards.2

c. Nitrogen Dioxide

NO2 is a reddish-brown gas that irritates the lungs. It can cause breathing difficulties at high concentrations. Like O3, NO2 is not directly emitted, but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO2 are collectively referred to as NOx and are major contributors to O3 formation. NO2 also contributes to the formation of PM10, which is discussed further in Section A.4.e. Levels of NO2 in Butte County are relatively low.

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d. Sulfur Oxides
Sulfur oxides, primarily SO₂, are a product of high-sulfur fuel combustion. The main sources of SO₂ are coal and oil used in power stations, industry, and for domestic heating, as well as motor vehicle exhaust and other combustion processes. Industrial chemical manufacturing is another source of SO₂. SO₂ is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children.

e. Particulate Matter
Particulate matter (PM) is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particles 10 microns or less in diameter are defined as “respirable particulate matter,” or PM₁₀. Fine particles are 2.5 microns or less in diameter (PM₂.₅) and can contribute significantly to regional haze and visibility reduction. Inhalable particulates come from smoke, dust, aerosols and metallic oxides. Although particulates are found naturally in the air, most PM found in the Butte County area is emitted either directly or indirectly by motor vehicles, industry, construction, agricultural activities, and wind erosion of disturbed areas. Most PM₂.₅ is comprised of combustion products, such as smoke.

Extensive research reviewed by CARB indicates that exposure to outdoor PM₁₀ and PM₂.₅ levels exceeding current ambient air quality standards is associated with increased risk of hospitalization for lung and heart-related respiratory illnesses, including asthma. PM exposure is also associated with increased risk of premature death, especially in the elderly and people with pre-existing cardiopulmonary disease. In children, studies have shown associations between PM exposure and reduced lung function and increased respiratory illnesses. Besides reducing visibility, the acidic portion of PM (nitrates and sulfates) can harm crops, forests, aquatic, and other ecosystems. In June 2002, CARB adopted new ambient air quality standards for PM₁₀ and PM₂.₅, resulting from an extensive review of the health-based scientific literature.
The US EPA recently updated the 24-hour standard for PM\textsubscript{2.5} and eliminated the annual PM\textsubscript{10} standard.\textsuperscript{3}

f. Toxic Air Contaminants
Toxic Air Contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality, usually because they cause cancer. They include, but are not limited to, the criteria air pollutants listed above in Sections A.4a through A.4.e. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations such as dry cleaners. TACs are typically found in low concentrations, even near their source. Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about two-thirds of the cancer risk from TACs, based on the statewide average. According to CARB, health effects of TACs include cancer, birth defects, neurological damage, damage to the body’s natural defense system, and diseases that lead to death. Compared to other air toxins CARB has identified and controlled, diesel particulate matter emissions are estimated to be responsible for about 70 percent of the total ambient air toxics risk.\textsuperscript{4}

In cool weather, smoke from residential wood combustion can be a source of TACs. Localized high TAC concentrations can result when cold stagnant air traps smoke near the ground. This occurs in sheltered valleys during the winter. Wood smoke also contains a significant amount of PM\textsubscript{10} and PM\textsubscript{2.5}. Wood smoke is an irritant and is implicated in worsening asthma and other chronic lung problems.

\textsuperscript{3} California Air Resources Board, June 26, 2008, \textit{Ambient Air Quality Standards (AAQS) for Particulate Matter}. Available at http://www.arb.ca.gov/research/aaqs/pm/pm.htm, accessed: September 2, 2009.

\textsuperscript{4} California Air Resources Board, Stationary Source Division, Mobile Source Control Division, October 2000, \textit{Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles}, Sacramento, CA.
5. Air Quality Attainment Plans
The California CAA requires air districts to adopt air quality attainment plans and continuously monitor their progress. Air districts must also periodically revise attainment plans to reflect new conditions and requirements in accordance with schedules mandated by the federal and State CAAs. The BCAQMD’s Air Quality Attainment Plan (Plan) was adopted in 1991 and updated in 1994, 1997, 2000, and 2003. In 2006, the BCAQMD collaborated with other air pollution control districts and air quality management districts for counties located in the Northern Sacramento Valley Air Basin (NSVAB) to prepare a joint Air Quality Attainment Plan. The Plan identifies improvement areas relative to the BCAQMD’s 2003 Plan, proposes strategies to attain the 1-hour CAAQS for O₃, describes cooperative actions to address air pollution problems, and focuses on the adoption of control measures for stationary, area-wide, and indirect sources.  

According to district staff, the BCAQMD is preparing to submit State Implementation Plans (SIP) for O₃ and PM_{2.5}. Butte County will be required to implement these plans following federal redesignation of these pollutants to nonattainment status, as described further below. The SIPs will be submitted no later than March 12, 2013 and December 18, 2012 for O₃ and PM_{2.5}, respectively, and will document how air quality standards for O₃ and PM_{2.5} will be attained.

B. Existing Conditions

Butte County is located in the NSVAB, which includes the counties of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba. The NSVAB is bounded

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6 Williams, Gail, Senior Air Quality Planner, Butte County Air Quality Management District, personal communication with Laura Smith, ICF Jones & Stokes, September 2, 2009.
on the north by the Cascade Range, on the south by the Greater Sacramento Air Region and San Joaquin Valley Air Basin, on the east by the Sierra Nevada Mountains, and on the west by the Coast Range.

This section describes the existing air quality conditions for Butte County, including regional climate and meteorology in the NSVAB, monitoring data, attainment status, and sensitive land uses.

1. Regional Climate and Meteorology

Summer conditions in the NSVAB are typically characterized by high temperatures and low humidity, with temperatures averaging approximately 90°F during the day and 50°F at night. During the summer months, the prevailing winds are typically from the south.

Winter conditions are characterized by occasional rainstorms interspersed with stagnant and sometimes foggy weather. The daytime average temperature is in the low 50s°F and nighttime temperatures average in the upper 30s°F. During winter, winds predominate from the south, but north winds frequently occur. Rainfall occurs mainly from late October to early May, with an average of 17.2 inches per year, but this amount can vary significantly each year.

Dispersion of local pollutant emissions are predominantly affected by the prevailing wind patterns and inversions that often occur in the NSVAB. Within the NSVAB, two types of inversions can occur. During summer months, sinking air forms a “lid” over the region and confines pollution to a shallow layer near the ground, which can contribute to photochemical smog problems. During winter nights, air near the ground cools while the air aloft remains warm, which can cause localized air pollution “hot spots” near emission sources.7

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2. Monitoring Data

Existing air quality conditions in Butte County can be characterized in terms of the ambient air quality standards that the federal and State governments have established for various pollutants, which are shown in Table 4.3-1, and by monitoring data collected in the region. Monitoring data concentrations are typically expressed in terms of ppm or micrograms per cubic meter (\(\mu g/m^3\)). Air quality monitoring stations located in Butte County include the Chico monitoring station, which monitors for \(O_3\), CO, PM10, and PM2.5; the Paradise Airport Road monitoring station, which monitors for \(O_3\); and the Paradise Fire Station monitoring station, which monitors for PM10. Air quality monitoring data from these monitoring stations are summarized in Table 4.3-2. The table includes data for the last three years in which complete data is available, 2006 to 2008. As indicated by Table 4.3-2, the above monitoring stations have experienced occasional violations of the following standards during the three-year monitoring period:

- 1-hour ozone: CAAQS
- 8-hour ozone: CAAQS and NAAQS
- PM10: CAAQS
- PM2.5: NAAQS

3. Attainment Status

If monitored pollutant concentrations meet State or federal standards over a designated period of time, the area is classified as being in attainment for that pollutant. If monitored pollutant concentrations violate the standards, the area is considered a nonattainment area for that pollutant. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified. Unclassified designations are typically applied to non-urbanized areas where levels of the pollutant are not a concern. Areas that were previously designated as nonattainment areas but have recently met the standard are called maintenance areas.

The EPA has classified the City of Chico as a Subpart 1 nonattainment area for the 8-hour \(O_3\) standard, while the rest of Butte County is classified as an unclassified/attainment area. According to BCAQMD staff, the EPA will
### TABLE 4.3-2 AMBIENT AIR QUALITY MONITORING DATA MEASURED AT MONITORING STATIONS WITHIN BUTTE COUNTY

<table>
<thead>
<tr>
<th>Pollutant Standards</th>
<th>Chico</th>
<th>Paradise Airport Road</th>
<th>Paradise Fire Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone (O₃)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 1-hour concentration (ppm)</td>
<td>0.090</td>
<td>0.094</td>
<td>0.111</td>
</tr>
<tr>
<td>Maximum 8-hour concentration (ppm)</td>
<td>0.080</td>
<td>0.084</td>
<td>0.096</td>
</tr>
<tr>
<td>Number of days standard exceeded: a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAAQS 1-hour (&gt;0.09 ppm)</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>NAAQS 8-hour (&gt;0.075 ppm)</td>
<td>4</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>CAAQS 8-hour (&gt;0.070 ppm)</td>
<td>19</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum 8-hour concentration (ppm)</td>
<td>2.70</td>
<td>2.16</td>
<td>2.74</td>
</tr>
<tr>
<td>Maximum 1-hour concentration (ppm)</td>
<td>4.3</td>
<td>3.3</td>
<td>3.1</td>
</tr>
<tr>
<td>Number of days standard exceeded: a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAAQS 8-hour (&gt;9 ppm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CAAQS 8-hour (&gt;9.0 ppm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NAAQS 1-hour (&gt;35 ppm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CAAQS 1-hour (&gt;20 ppm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Particulate Matter (PM₁₀)b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National maximum 24-hour concentration (μg/m³)</td>
<td>76.0</td>
<td>61.9</td>
<td>143.5</td>
</tr>
<tr>
<td>National second-highest 24-hour concentration (μg/m³)</td>
<td>65.0</td>
<td>61.0</td>
<td>112.4</td>
</tr>
<tr>
<td>State maximum 24-hour concentration (μg/m³)</td>
<td>81.0</td>
<td>66.1</td>
<td>140.8</td>
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<tr>
<td>State second-highest 24-hour concentration (μg/m³)</td>
<td>70.0</td>
<td>65.0</td>
<td>111.6</td>
</tr>
<tr>
<td>National annual average concentration (μg/m³)</td>
<td>26.3</td>
<td>21.3</td>
<td>27.3</td>
</tr>
</tbody>
</table>
## Table 4.3-2  Ambient Air Quality Monitoring Data Measured at Monitoring Stations within Butte County (continued)

<table>
<thead>
<tr>
<th>Pollutant Standards</th>
<th>Chico</th>
<th>Paradise Airport Road</th>
<th>Paradise Fire Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>State annual average concentration (μg/m³)</td>
<td>26.9</td>
<td>21.8</td>
<td>27.7</td>
</tr>
<tr>
<td>Number of days standard exceeded:a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAAQS 24-hour (&gt;150 μg/m³)f</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CAAQS 24-hour (&gt;50 μg/m³)f</td>
<td>26</td>
<td>21</td>
<td>27</td>
</tr>
</tbody>
</table>

### Particulate Matter (PM2.5)

<table>
<thead>
<tr>
<th>Pollutant Standards</th>
<th>Chico</th>
<th>Paradise Airport Road</th>
<th>Paradise Fire Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationalc maximum 24-hour concentration (μg/m³)</td>
<td>67.0</td>
<td>53.9</td>
<td>107.6</td>
</tr>
<tr>
<td>Nationalc second-highest 24-hour concentration (μg/m³)</td>
<td>59.0</td>
<td>53.0</td>
<td>93.8</td>
</tr>
<tr>
<td>Stated maximum 24-hour concentration (μg/m³)</td>
<td>76.1</td>
<td>83.7</td>
<td>190.9</td>
</tr>
<tr>
<td>Statee second-highest 24-hour concentration (μg/m³)</td>
<td>74.0</td>
<td>70.2</td>
<td>180.1</td>
</tr>
<tr>
<td>Nationalb annual average concentration (μg/m³)</td>
<td>13.2</td>
<td>10.7</td>
<td>16.4</td>
</tr>
<tr>
<td>Statec annual average concentration (μg/m³)e</td>
<td>14.6</td>
<td>14.4</td>
<td>18.2</td>
</tr>
<tr>
<td>Number of days standard exceeded:a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAAQS 24-hour (&gt;35 μg/m³)f</td>
<td>29</td>
<td>24</td>
<td>37</td>
</tr>
</tbody>
</table>

Notes:  

- CAAQS = California ambient air quality standards.  
- NAAQS = national ambient air quality standards.  
- – = insufficient data available to determine the value.  
- An exceedance is not necessarily a violation.  
- Measurements usually are collected every 6 days.  
- National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.  
- State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.  
- State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.  
- Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been rounded.

Sources:  

redesignate the entire county as a nonattainment area on or before March 12, 2010. For the CO standard, the EPA has classified the Chico Urbanized Area as a moderate ($\leq 12.7$ ppm) maintenance area, while the rest of Butte County is classified as an unclassified/attainment area. The EPA has designated the lower elevations of Butte County as a nonattainment area for the PM$_{2.5}$ standard. The EPA has classified Butte County as an unclassified/attainment area for the PM$_{10}$ standard.  

CARB has classified Butte County as a moderate nonattainment area for the 1-hour O$_3$ standard and as a nonattainment area for the 8-hour O$_3$ standard. For the CO standard, CARB has classified Butte County as an attainment area. CARB has classified Butte County as a nonattainment area for the PM$_{10}$ and PM$_{2.5}$ standards.

Butte County’s attainment status for each of these pollutants relative to the NAAQS and CAAQS is summarized in Table 4.3-3.

4. Sensitive Land Uses

Sensitive land uses are generally defined as locations where people reside or where the presence of air emissions could adversely affect the use of the land. Typical sensitive receptors include residents, schoolchildren, hospital patients, and the elderly. Sensitive receptors are located throughout Butte County but tend to be concentrated in urbanized areas.

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8 Williams, Gail, Senior Air Quality Planner, Butte County Air Quality Management District, personal communication with Laura Smith, ICF Jones & Stokes, September 2, 2009.


TABLE 4.3-3  FEDERAL AND STATE ATTAINMENT DESIGNATIONS FOR BUTTE COUNTY

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Federal Designation</th>
<th>State Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-hour ozone</td>
<td>Transitional nonattainment for Chico area (Clean Air Act Section 185A area)(^a)</td>
<td>Moderate nonattainment</td>
</tr>
<tr>
<td>8-hour ozone</td>
<td>Subpart 1 nonattainment for Chico area(^b)</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>Moderate (≤ 12.7 ppm) maintenance for Chico area</td>
<td>Attainment</td>
</tr>
<tr>
<td>Inhalable particulate matter (PM(_{10}))</td>
<td>Unclassified/attainment</td>
<td>Nonattainment</td>
</tr>
<tr>
<td>Inhalable particulate matter (PM(_{2.5}))</td>
<td>Unclassified/attainment(^c)</td>
<td>Nonattainment</td>
</tr>
</tbody>
</table>

\(^a\) Previously in non-attainment area, no longer subject to the 1-hour standard as of June 15, 2005.

\(^b\) The EPA will redesignate the entire county as a nonattainment area on or before March 12, 2010

\(^c\) The EPA will redesignate the lower elevations of Butte County as a nonattainment area on or before December 18, 2009.


C. Standards of Significance

General Plan 2030 and the ALUCP override would have a significant impact on air quality if they would:

♦ Conflict with or obstruct implementation of the applicable air quality plan.

♦ Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

♦ Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
♦ Expose sensitive receptors to substantial pollutant concentrations.
♦ Create objectionable odors affecting a substantial number of people.

In addition to the above standards, significance criteria established by the applicable air quality management or air pollution control district may be relied on to make determinations of impact. The BCAQMD has specified significance thresholds within its CEQA Air Quality Handbook to determine air quality impacts for projects located within the NSVAB.11

The BCAQMD has three levels of emission thresholds, and depending on the emissions produced from the proposed project, different mitigation measures would be required. Operational emission thresholds are presented in Table 4.3-4. If construction is anticipated to last longer than one year, these thresholds can also be used to evaluate construction impacts. With the anticipated federal O₃ and PM₂.₅ redesignations, District staff has indicated that these thresholds will be lowered sometime in January 2010. In addition, independent thresholds for construction activities will be established.12

The three levels of emission thresholds are described below.

♦ **Level A:** Sources that have the potential to emit less than 25 pounds per day of ROG or NOₓ, or less than 80 pounds per day of PM₁₀, would be subject to the BCAQMD’s recommended list of standard mitigation measures unless exempted in writing by the applicable planning agency. The project proponent would be required to coordinate with the planning agencies to identify feasible mitigation measures.

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12 Williams, Gail, Senior Air Quality Planner, Butte County Air Quality Management District, personal communication with Laura Smith, ICF Jones & Stokes, September 2, 2009.
Table 4.3-4  BUTTE COUNTY AIR QUALITY MANAGEMENT DISTRICT
OPERATIONAL EMISSION_THRESHOLDS (POUNDS PER DAY)

<table>
<thead>
<tr>
<th></th>
<th>ROG</th>
<th>NOₓ</th>
<th>PM₁₀</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level A</td>
<td>≤ 25</td>
<td>≤ 25</td>
<td>≤ 80</td>
</tr>
<tr>
<td>Level B</td>
<td>&gt; 25</td>
<td>&gt; 25</td>
<td>&gt; 80</td>
</tr>
<tr>
<td>Level C</td>
<td>&gt; 137</td>
<td>&gt; 137</td>
<td>&gt; 137</td>
</tr>
</tbody>
</table>


♦ Level B: Sources that have the potential to emit greater than 25 pounds per day of ROG or NOₓ, or greater than 80 pounds per day of PM₁₀, would be subject to as many of the BCAQMD’s best available mitigation measures as are feasible, in addition to the BCAQMD’s recommended list of standard mitigation measures. Project proponents would be required to coordinate with the planning agencies to identify feasible mitigation measures.

♦ Level C: Sources that have the potential to emit 137 pounds per day or greater of ROG, NOₓ or PM₁₀ would select as many of the BCAQMD’s supplemental mitigation measures as are feasible, in addition to the BCAQMD’s recommended list of standard mitigation measures. Project proponents would be required to coordinate with the planning agencies to identify feasible mitigation measures, including off-site mitigation measures. Conversation with BCAQMD staff indicates that any emissions that exceed the BCAQMD’s Level C thresholds of 137 pounds per day would be considered to have a significant air quality impact, and PM₁₀ emissions in excess of this level would also require that a Dust Control Plan be submitted to the BCAQMD for approval.¹³

¹³ Williams, Gail, Senior Air Quality Planner, Butte County Air Quality Management District, Chico, CA. April 29, 2005. Email to Shannon Hatcher.
For CO hotspot emissions, typically including very congested intersections, a significant impact is anticipated to occur if CALINE4 dispersion modeling would result in CO concentrations in excess of the 1- or 8-hour CAAQS.

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative air quality impacts that could occur as a result of the projected 2030 buildout of General Plan 2030. Potential impacts resulting from increased traffic from planned development are evaluated against the numerical thresholds provided in Table 4.3-4. The impacts resulting from increased traffic are based on the traffic model discussed in Chapter 4.13, and take into account development not only from projected 2030 buildout of General Plan 2030, but also projected development within the incorporated municipalities in Butte County and the surrounding counties, as explained further in Section D.2 of Chapter 4.13, Transportation and Circulation. Potential impacts from non-vehicle sources and construction activities, as well as health risks from diesel exhaust, are evaluated qualitatively against current conditions.

Implementation of the ALUCP override would have no air quality impact in Butte County, and is not discussed further in this section.

1. Project Impacts
a. Consistency with Applicable Air Quality Plans

The assessment of air quality plan consistency in this section is based on a quantitative analysis of impacts resulting from the projected 2030 buildout of General Plan 2030. In accordance with the CCAA, an air quality attainment plan is required to be prepared for areas designated as non attainment or maintenance areas with regards to the NAAQS or CAAQS. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date. Typically, a General Plan is deemed inconsistent with air quality plans if it would result in population, VMT, or emissions that exceed the estimates included in the applicable
air quality plan, since such exceedences would hinder achievement of federal and State air quality standards.

The Northern Sacramento Valley Planning Area (NSVPA) 2006 Air Quality Attainment Plan (NSVPA Plan), which is discussed in Section A.5, is the most recent air quality planning document for Butte County. The NSVPA Plan includes forecasted ROG and NOx emissions for the entire NSVPA region through the year 2020. These emissions estimates are not apportioned by county or municipality. In addition, the NSVPA Plan does not include VMT or population projections. Given the data shortcomings and the regional scope of the current air quality plan, BCAQMD has concluded that evaluating General Plan 2030 against the growth rates presented in the NSVPA Plan is inappropriate. Consequently, an alternative method of assessment was developed in consultation with BCAQMD staff for use in this General Plan EIR.

Because the NSVPA Plan provides insufficient detail to allow comparison of its projections with the projected 2030 buildout allowed under General Plan 2030, this EIR compares General Plan 2030 to the projections of future population and vehicle miles traveled (VMT) used by BCAQMD and BCAG to predict and plan for future growth. These projections are considered a reasonable proxy for the NSVPA Plan because the pollutant emissions regulated by the NSVPA Plan are generated primarily by people living and driving in the region. In addition, as described below, the BCAG and BCAQMD projections reflect land use policies and long-range transportation improvements.

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and conform to applicable SIPs and all sections of the EPA’s Transportation Conformity Rule.\textsuperscript{16}

Therefore, county-specific pollutant emissions, VMT, and population forecasts for 2030, provided by BCAG, were used to evaluate whether General Plan 2030 would exceed countywide growth estimates. The countywide VMT projections were calculated based on the existing General Plans for the incorporated municipalities within the county, including Biggs, Chico, Gridley, Oroville, and Paradise, as well as for unincorporated Butte County, and they consider all applicable land use policies specified by those General Plans.\textsuperscript{17} In addition, BCAG’s 2030 pollutant emission forecasts were modeled using EMFAC2007 and the BCAG Transportation Model, which incorporates BCAG’s long-range planning assumptions about future transportation improvements contained within the RTP.

Table 4.3-5 summarizes projected 2030 VMT, population, and pollutant emissions for Butte County and General Plan 2030. The difference between the 2030 BCAG and unincorporated Butte County data represent VMT, population, and emissions directly attributable to General Plan 2030.

As indicated by Table 4.3-5, projected 2030 VMT, population, and pollutant emissions resulting from implementation of General Plan 2030 will not exceed countywide BCAG growth estimates. Furthermore, not only does General Plan 2030 incorporate numerous transportation control measures, implementation of the plan would result in a net decrease of VMT relative to the no project condition, as discussed in more detail in Section D.1.b.ii.


\textsuperscript{17} Devine, Chris. Butte County Association of Governments, Chico, CA. October 13, 2009—Telephone conversation with Laura Smith.
**Table 4.3-5  2030 VMT, Population, and Pollutant Emission Projections**

<table>
<thead>
<tr>
<th></th>
<th>2030 BCAG Projections&lt;sup&gt;a&lt;/sup&gt;</th>
<th>General Plan 2030</th>
<th>Percent Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMT</td>
<td>6,439,000</td>
<td>2,108,529&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-205%</td>
</tr>
<tr>
<td>Population</td>
<td>334,842</td>
<td>117,500</td>
<td>-185%</td>
</tr>
<tr>
<td>ROG (lbs/day)</td>
<td>3,410</td>
<td>423&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-706%</td>
</tr>
<tr>
<td>NOx (lbs/day)</td>
<td>6,140</td>
<td>1,359&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-352%</td>
</tr>
<tr>
<td>CO (lbs/day)</td>
<td>22,290</td>
<td>4,682&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-376%</td>
</tr>
<tr>
<td>PM (lbs/day)&lt;sup&gt;d&lt;/sup&gt;</td>
<td>670</td>
<td>186&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-260%</td>
</tr>
</tbody>
</table>

<sup>a</sup>2030 Butte County VMT and emissions projections were interpolated from 2025 and 2035 data presented in the *Draft Environmental Impact Report for the 2008 RTP* and the associated Final Conformity Analysis and Determination. using the following equation: \(((2035 \text{ data}-2025 \text{ data})/10)*5)+2025 \text{ data})

<sup>b</sup>Provided by Fehr & Peers. Represents VMT with project conditions for the unincorporated portion of Butte County.

<sup>c</sup>Emissions modeling completed by ICF Jones & Stokes using VMT data provided by Fehr & Peers and the CT-EMFAC model

<sup>d</sup>Emissions represent total PM (PM10 + PM2.5)

below. Consequently, General Plan 2030 is not expected to obstruct countywide efforts to achieve federal and State air quality standards. This impact is considered less-than-significant.

b. Violate any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

This impact discussion includes separate discussions about CO emissions from vehicle exhaust, other criteria pollutants from vehicle- and non-vehicle sources, and odors.

i. Carbon Monoxide Emissions from Vehicle Exhaust

The assessment of carbon monoxide emissions from vehicles in this section is based on a quantitative analysis of impacts resulting from the projected 2030 buildout of General Plan 2030. Elevated levels of CO concentrations are typically found in areas with significant traffic congestion. For this analysis, the effects of CO “hot spots” were evaluated through CO dispersion modeling using CARB’s EMFAC2007 (Version 2.3), CLAINE4, and traffic data provided by the traffic engineers. A technical discussion of modeling procedures is provided in Appendix A.

CO emissions were modeled for existing (2006) and future (2030) project conditions. Only the PM peak hour traffic was modeled, as the traffic data indicated that level of service and delays would be worse in the afternoon than in the morning. CO modeling was conducted on the following five roadway segments. These segments were selected because they either had the worst level of service/traffic volumes, or are expected to experience the largest worsening in level of service/traffic volumes under future with project conditions.

- Highway 99 from Highway 149 to Durham-Pentz Road
- Highway 99 from Durham-Pentz Road to the Skyway
- Highway 99 from East 20th Street to Highway 32

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Table 4.3-6 presents the results of the CO “hotspot” modeling, and indicates that implementation of General Plan 2030 would not result in violations of the State or federal 1-hour or 8-hour CO standards. Consequently, the impact of traffic conditions from General Plan 2030 on ambient CO levels is considered less than significant.

**ii. Criteria Pollutant Emissions from Vehicle Miles Traveled**

The assessment of criteria pollutant emissions from vehicles in this section is based on a quantitative analysis of impacts resulting from the projected 2030 build-out of General Plan 2030. The primary operational emissions associated with the proposed project are CO, PM_{10}, PM_{2.5}, and ozone precursors (ROG and NO\textsubscript{x}), emitted as vehicle exhaust. For this analysis, emissions of these pollutants for existing year (2006) and 2030 project conditions were evaluated using the CT-EMFAC 2007 model and traffic data provided by the project traffic engineers. VMT data included vehicle activity in surrounding areas, as countywide traffic patterns would be affected by implementation of the proposed project. Appendix B contains a technical discussion of the modeling procedures, and Table 4.3-7 summarizes the results of the modeling.

As indicated in Table 4.3-7, implementation of General Plan 2030 would result in net decreases in CO, ROG, NO\textsubscript{x}, and PM\textsubscript{10}, and PM\textsubscript{2.5} relative to existing conditions. Vehicular emission rates are anticipated to lessen in future years due to continuing improvements in engine technology and the phasing out of older, higher-emitting vehicles. These decreases in emission rates are sufficient to offset the increases in VMT seen between existing and 2030 project conditions, resulting in the decreased CO, ROG, NO\textsubscript{x}, PM\textsubscript{10}, and PM\textsubscript{2.5} emissions observed in Table 4.3-7.

Seven of the circulation goals and their associated policies and actions, and one land use policy set forth in General Plan 2030 would help reduce criteria pollutant emissions from mobile sources. Specifically, Goal CIR-1 promotes...
### Table 4.3-6  Carbon Monoxide Modeling Results at Designated Receptor Locations

<table>
<thead>
<tr>
<th>Segment</th>
<th>Receptor (Feet)</th>
<th>Existing (2006)</th>
<th>2030 Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-Hour CO(^b)</td>
<td>8-Hour CO(^c)</td>
<td>1-Hour CO(^b)</td>
</tr>
<tr>
<td>Highway 149 to Durham – Pentz Road</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.96</td>
<td>3.27</td>
<td>3.86</td>
</tr>
<tr>
<td>25</td>
<td>4.66</td>
<td>3.09</td>
<td>3.76</td>
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<tr>
<td>50</td>
<td>4.46</td>
<td>2.97</td>
<td>3.76</td>
</tr>
<tr>
<td>100</td>
<td>4.26</td>
<td>2.85</td>
<td>3.76</td>
</tr>
<tr>
<td>250</td>
<td>3.96</td>
<td>2.67</td>
<td>3.56</td>
</tr>
<tr>
<td>500</td>
<td>3.86</td>
<td>2.61</td>
<td>3.56</td>
</tr>
<tr>
<td>Durham – Pentz Road to the Skyway</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4.56</td>
<td>3.03</td>
<td>3.86</td>
</tr>
<tr>
<td>25</td>
<td>4.36</td>
<td>2.91</td>
<td>3.86</td>
</tr>
<tr>
<td>50</td>
<td>4.26</td>
<td>2.85</td>
<td>3.76</td>
</tr>
<tr>
<td>100</td>
<td>4.06</td>
<td>2.73</td>
<td>3.76</td>
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<tr>
<td>250</td>
<td>3.86</td>
<td>2.61</td>
<td>3.66</td>
</tr>
<tr>
<td>500</td>
<td>3.76</td>
<td>2.55</td>
<td>3.56</td>
</tr>
<tr>
<td>East 20(^{th}) Street to Highway 32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5.86</td>
<td>3.81</td>
<td>4.06</td>
</tr>
<tr>
<td>25</td>
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<td>3.96</td>
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<td>50</td>
<td>5.06</td>
<td>3.33</td>
<td>3.86</td>
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<td>4.66</td>
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<tr>
<td>500</td>
<td>4.06</td>
<td>2.73</td>
<td>3.66</td>
</tr>
<tr>
<td>Segment</td>
<td>Existing (2006)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Receptor (Feet)</td>
<td>1-Hour CO&lt;sup&gt;b&lt;/sup&gt;</td>
<td>8-Hour CO&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Highway 32 to Cohasset Road</td>
<td>3</td>
<td>5.86</td>
<td>3.81</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>5.36</td>
<td>3.51</td>
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<td></td>
<td>50</td>
<td>5.06</td>
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<td>250</td>
<td>4.26</td>
<td>2.85</td>
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<tr>
<td></td>
<td>500</td>
<td>4.06</td>
<td>2.73</td>
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<tr>
<td>Highway 70 to Feather River Boulevard</td>
<td>3</td>
<td>5.06</td>
<td>3.33</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>4.76</td>
<td>3.15</td>
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<td></td>
<td>50</td>
<td>4.56</td>
<td>3.03</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>500</td>
<td>3.86</td>
<td>2.43</td>
</tr>
</tbody>
</table>

<sup>a</sup> Background concentrations of 3.56 ppm and 2.43 ppm were added to the modeling 1-hour and 8-hour results, respectively.

<sup>b</sup> The federal and State 1-hour standards are 35 and 20 ppm, respectively.

<sup>c</sup> The federal and State 8-hour standards are 9 and 9.0 ppm, respectively.


Intergovernmental communication and cooperation during transportation planning. Since integrated planning coordinates transportation decisions at a municipal and/or countywide level, roadway issues are efficiently addressed, thus helping to improve the transportation network and reduce potential emissions associated with traffic problems.
Goals CIR-2, CIR-3, CIR-4, and CIR-5 target the main source of criteria pollutant emissions, automobile VMT, by promoting alternative forms of transportation. Associated policies support public transit, carpooling, home businesses, street-safety improvements, bicycle systems, and walkable neighborhoods. Together these goals would reduce VMT and thus, directly reduce emissions of CO, ROG, NOx, PM10, and PM2.5.

Goals CIR-6 and CIR-7 would help streamline the transportation network through policies that maximize the mobility of people and goods. Associated policies would promote roadway improvements, encourage new roads to be located near future and existing development, and require a level of service (LOS) C or better during the PM peak hour on all County-maintained roads outside of municipal Spheres of Influence (SOIs), a level of service consistent with municipal standards within SOIs, and a level of service consistent with Caltrans protocols on all State highways. Land Use Element Policy LU-P9.2 would further improve the transportation network by directing the County to balance development densities with traffic-carrying capacities of existing and proposed circulation plans. Together, these goals and policies would help create a more efficient transportation network, thus reducing emissions associated with congestion and stop-and-go traffic.
In addition to these General Plan 2030 goals and policies, as discussed in Section C, the BCAQMD has developed standard mitigation measures for individual projects, depending on the level of emissions. These would further reduce criteria pollutant emissions from mobile sources resulting from future development allowed by General Plan 2030.

The above goals and policies and BCAQMD standard mitigation measures would help reduce criteria pollutant emissions from mobile sources beyond the anticipated decreases indicated in Table 4.3-7. Because criteria pollutant emissions are expected to decrease relative to existing conditions, this impact is considered less than significant.

iii. Criteria Pollutant Emissions from Non-Vehicle Sources
The assessment of criteria pollutant emissions from non-vehicle sources in this section is based on a spatial analysis of impacts resulting from the location of development that would be allowed under General Plan 2030.

a) Mining
Mining in Butte County centers on sand and gravel, although gold mining also occurs. Air quality impacts could result from mining operations, such as digging, transporting, and processing gravel, and through the use of heavy equipment. Together, these activities could generate criteria pollutants, such as CO, NO\textsubscript{x}, SO\textsubscript{2}, PM\textsubscript{10}, and PM\textsubscript{2.5}, as well as air toxins like volatile organic compounds (VOCs) and diesel exhaust.\textsuperscript{19}

General Plan 2030 identifies mineral resource zones that will be conserved for mining purposes in accordance with the Surface Mining and Reclamation Act of 1975 (SMARA). These zones represent a continuation of existing conditions, since there are existing mining uses at these sites. General Plan 2030 would not change existing County procedures for allowing or regulating mining uses. Therefore, adoption of General Plan 2030 would not be expected to

result in either an increase or a decrease in mining uses in Butte County. It is therefore logical to assume that potential mining-related emissions sources would not increase. In addition, it is likely that existing emissions from heavy duty equipment used in the mining process will decline as a function of time due to new EPA diesel fuel regulations. These regulations are expected to “reduce harmful emissions by 90 percent or more.”

Since existing emissions from heavy-duty equipment are expected to decline, and implementation of General Plan 2030 is not expected to increase the number of emissions sources relative to existing conditions, it is likely that future emissions form mining operations will decrease. Consequently, this impact is considered less than significant.

b) Agriculture

The agricultural industry produces a number of air pollutants that can have adverse effects on air quality and human health. According to CARB, agricultural operations release CO, NOx, SOx, PM10, VOCs, and pesticides. Diesel exhaust is also produced by heavy-duty agricultural equipment, such as tractors. Future CARB control measures for in-use agricultural equipment are expected to accelerate fleet turnover and reduce PM and NOx emissions. In addition, new EPA diesel fuel regulations for off-road heavy duty equipment will “reduce harmful emissions by 90 percent or more.”

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Approximately 599,040 acres in Butte County are currently used for agriculture. Primary uses include field and row crops, orchards, rice, grazing, dry farming, and timber. Implementation of General Plan 2030 is not expected to increase agricultural uses. It is therefore logical to assume that potential emissions sources (e.g., heavy-duty equipment) would not increase. Since new EPA and CARB regulations will reduce future emissions from off-road diesel fuel, and potential emission sources are expected to remain constant between existing and future conditions, it is likely that emissions from the agricultural sector will decrease during implementation of General Plan 2030. Consequently, this impact is considered less than significant.

c) Residential, Retail/Office and Industrial Development

Development allowed by General Plan 2030 would result in long-term emissions of CO, ROG, NOx, and PM10, from residential, retail/office, and industrial buildings. As indicated in Chapter 3, the projected 2030 buildout for the proposed project includes approximately 13,700 new dwelling units, 1.8 million square feet of new retail/office space, and 1.1 million square feet of new industrial space.

Common emission sources from this development include natural gas and wood combustion for energy and heating, criteria pollutants from landscaping equipment, and air toxins from personal household product use. Increased vehicle trips to and from these land uses also generate emissions, especially when development occurs at low densities or is located far from transportation hubs.

Light manufacturing, heavy industrial, service and repair, processing, and warehousing are other potential uses allowed by General Plan 2030. Potential TACs associated with these facilities include, but are not limited to, CO, SOx, PM10, PM2.5, solvents, diesel exhaust, and metals. In addition, development allowed by the proposed project could include gas stations and dry cleaning

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services. These uses release benzene and perchloroethylene, respectively, which are highly regulated carcinogens.24

General Plan 2030 includes a number of goals and policies that would help minimize air quality impacts associated with energy consumption and building maintenance. Goal COS-1 aims to reduce greenhouse gas emissions to 1990 levels by 2020. The associated policies encourage use of recycled construction materials, off-site mitigation, and natural stormwater facilities. Goal COS-2 and its associated policies promote green building through compliance with green building standards, such as LEED and Greenpoint Systems. A sustainable energy supply is supported by Goal COS-3 and its associated policies through the expansion and development of hydroelectric power plants, renewable fuel and power sources (solar and wind), and utility lines along existing corridors. Homebuyers would also be given the option of having renewable energy incorporated into new home design. Goal COS-4 and its associated policies aim to conserve energy and fuel resources by rewarding energy efficiency efforts of local businesses, requiring shading ordinances for parking lots, and encouraging designs that maximize energy efficiency and meet the guidelines of the California Energy Star New Homes Program. Finally, Policy COS-P5.3 would help reduce particulate matter by prohibiting wood-burning fireplaces and non-EPA certified wood stoves in new development.

In addition, General Plan 2030 includes policies that protect sensitive receptors from TACs emitted from stationary air pollutant sources, such as industrial and commercial developments. Conservation and Open Space Policies COS-P5.4 and COS-P5.5 require that stationary sources be located more than 500 feet away and/or downwind from residential areas and other sensitive receptors, and that residential developments and other projects with sensitive receptors be located more than 500 feet from stationary air pollutant sources. Policy COS-P5.6 requires new sources of toxic air pollutants to prepare a

Health Risk Assessment, including establishing appropriate land use buffer zones around those areas posing substantial health risks based upon CARB’s guidance provided in the Air Quality Land Use Handbook. Land Use Policy LU-P5.2 groups industrial uses into integrated industrial parks, while Policy LU-P8.4 encourages new industrial development to be located in existing industrial areas. Finally, Policy LU-P5.3 stipulates that new industrial uses shall be designed to avoid adverse air quality impacts to adjacent uses, particularly near residential neighborhoods.

General Plan 2030 goals and policies would also help decrease emissions associated with vehicle trips by encouraging high density and well-planned development. More specifically, Goal LU-8 and its associated policies promote development near existing infrastructure and services. Goal LU-14 provides for orderly and well-planned growth within the South Oroville/Las Plumas Area by restricting development to infrastructure limitations. In addition, Policy LU-P4.2 requires residentially-designated land to be developed at or above the minimum density established by the land use designation for a given area or parcel.

Other General Plan 2030 goals and policies would further reduce emissions from vehicle trips by promoting alternative modes of transportation. As described in Section D.1.b.ii, Goal CIR-3 and its associated policies encourage the design of new neighborhoods to accommodate and promote alternative modes of transportation. In addition, Policy LU-P3.2 promotes walking and recreation by requiring newly-developed neighborhoods to include parks and recreation facilities, as well as sidewalks, bike paths, and other routes to improve circulation to surrounding areas. Finally, Policy LU-P4.3 stipulates that higher density housing be located along collector and arterial streets and within easy walking distance of public facilities.

The above goals and policies would help reduce emissions of CO, ROG, NOₓ, and PM₁₀, as well as potential health risks associated with emissions of TACs. In the absence of a quantitative analysis, there is insufficient data to determine the magnitude of these reductions. However, future development
constructed under General Plan 2030 will be subject to project-level CEQA analysis and BCAQMD rules, regulations, and standard mitigation measures. This subsequent project-level review, combined with the goals and policies described in this section would result in a *less-than-significant* impact.

*iv. Generation of Construction Emissions*

The assessment of construction emissions in this section is based on an analysis of the spatial location of development allowed by General Plan 2030. Construction activities temporarily generate CO, ROG, NOx, PM10, and PM2.5 emissions, which could result in adverse affects on short-term ambient air quality. Primary emission sources include mobile and stationary construction equipment exhaust, employee vehicle exhaust, dust from grading, exposed soil eroded by wind, and ROG from architectural coatings and asphalt paving. Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

Projected 2030 buildout of General Plan 2030 would add a significant amount of development and supporting infrastructure in Butte County. As indicated in Chapter 3, the projected 2030 buildout for the proposed project includes 13,700 new dwelling units, 1.8 million square feet of new retail/office space, and 1.1 million square feet of new industrial space. In addition, General Plan 2030 has planned for three improvements to the transportation network in order to maintain level of service standards. Construction of these projects could result in construction emission in excess of the BCAQMD threshold levels that are provided in Table 4.3-4.

Implementation of goals and policies from General Plan 2030 would help to minimize construction emissions. In particular, Policy COS-P5.2 requires that best management practices be implemented to reduce air pollutant emissions associated with the construction and operation of development projects. Since the timing and duration of construction activities associated with the buildout projections over the 20-year life of the plan cannot be determined, it
It is not possible to determine the magnitude of emissions reductions that would be achieved by this policy. However, future development would undergo CEQA review for project-specific impacts. In addition, since Policy COS-P5.2 requires that best management practices for construction impacts be employed, individual projects will be subject to published BCAQMD best management mitigation measures. When implemented, these measures constitute sufficient mitigation of project-level impacts. Consequently, this impact is considered less than significant.

c. Expose Sensitive Receptors to Substantial Concentrations of Diesel Exhaust

The assessment of sensitive receptor exposure to diesel exhaust in this section is based on an analysis of the spatial location of development allowed by General Plan 2030. As indicted in Section A.4.f, CARB has identified diesel exhaust as a TAC. Cancer health risks associated with exposures to diesel exhaust typically are associated with chronic exposure, often defined as a 70-year exposure period. Although elevated cancer rates can result from exposure periods of less than 70 years, acute exposure (i.e. exposure periods of 2 to 3 years) to diesel exhaust is not anticipated to result in an increased health risk.\(^{25}\)

In addition to the length of the exposure period, the location of potential emissions sources is a major factor in determining the health risk of diesel exhaust. In general, diesel exhaust has a greater potential to harm people when the source of emissions is closer to populations.\(^{26}\) Children, the elderly, and people with illnesses are more susceptible to the adverse effects of diesel exhaust. Sensitive receptors, or facilities that attract these individuals, are of particular concern when located in close proximity to sources of diesel ex-

\(^{25}\) California Air Resources Board, Stationary Source Division, Mobile Source Control Division, October 2000, Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles, Sacramento, CA.

haust. Schools, hospitals, convalescent facilities, and residential areas are examples of sensitive receptors. Even though sensitive receptors are at an increased risk to diesel exhaust, exposure can adversely affect all members of the population. Thus, consideration of potential air quality impacts should address all members of the population.

Diesel-powered construction equipment, heavy-duty trucks, and new industrial and commercial development are the main sources of diesel exhaust associated with implementation of the proposed project. Development allowed by General Plan 2030 would require diesel-powered construction equipment that could generate increased diesel exhaust. In addition, new retail/office, industrial, and transportation developments could increase the concentration of heavy-duty trucks in particular areas. As these land uses compete for decreasing space within the county, sensitive receptors may be relocated or built closer to potential emission sources relative to existing conditions.

Several policies described above would help to minimize the health effects of diesel exhaust and lessen the exposure potential of sensitive receptors. Policy COS-P5.2 would reduce diesel emissions from construction activities through the use of best management practices. Land use and design requirements for industrial and commercial facilities stipulated in Policies LU-P5.2, LU-P5.3, and LU-P8.2 would help mitigate diesel impacts associated with these facilities. Proximity restrictions and health risk assessments required by Policies COS-P5.4, COS-P5.5, and COS-P5.6 would protect sensitive receptors from potential stationary source emissions. Finally, implementation of Goals CIR-2 through CIR-6 and their associated policies and actions would reduce traffic congestion and promote alternative transportation, thus helping to minimize high levels of diesel exhaust associated with stop-and-go traffic.

Taken together, these policies would help reduce diesel exhaust and associated health risks. However, as noted above, with limited quantitative information it is difficult to assess the magnitude of these reductions. The establishment of buffer zones that decrease the likelihood of exposure and the implementation of control technologies that directly reduce diesel PM are typically stipu-
lated as sufficient mitigation to reduce health risks from TACs. Since the goals and policies included in General Plan 2030 stipulate distance requirements and control technologies that would effectively reduce diesel PM exposure, this impact is considered *less than significant*.

d. **Generate Significant Levels of Odors**

The assessment of odor generation in this section is based on an analysis of the spatial location of development allowed by General Plan 2030. Odors are typically generated from construction diesel exhaust, agricultural operations, and certain types of industrial land uses. In general, residential land uses are not associated with odor generation. The BCAQMD states that a project would have a significant odor impact if it is located in close proximity to sensitive receptors. As discussed above, General Plan 2030 includes several policies that would establish land use buffers around potential sources of odors. Policies LU-P5.2, LU-P5.3, and LU-P8.2 stipulate land use and design requirements for industrial and commercial facilities that would limit the potential for odor exposures. Proximity restrictions outlined by Policies COS-P5.4, COS-P5.5, and COS-P5.6 would further protect sensitive receptors from sources of odors. Finally, Policy COS-P5.2 would help reduce diesel emissions from construction activities, thus minimizing potential odors. These General Plan 2030 policies work to ensure that the proposed project would not expose sensitive receptors to substantial levels of odors. Consequently, this impact is considered *less than significant*.

2. **Cumulative Impacts**

The traffic-related air pollutant emissions predicted for 2030 and discussed in Section D.1 above are based on cumulative traffic conditions that take into account cumulative development in the county, including development within the incorporated municipalities. As discussed above, implementation of General Plan 2030 is predicted to result in net decreases in CO, ROG, NO\textsubscript{x}, PM\textsubscript{10}, and PM\textsubscript{2.5}, since decreases in emission rates from improvements in engine technology and the phasing out of older higher-emitting vehicles are sufficient to offset the increases in VMT seen between existing and 2030 project conditions. Air pollutant emissions from non-vehicle sources are likely
to occur as a result of development in incorporated cities and the surrounding counties. However, such development would be subject to the requirements of the applicable air quality district and General Plan policies of the applicable municipality or county that address air quality. Therefore, General Plan 2030 would result in a less-than-significant cumulative air quality impact.

E. Maximum Theoretical Buildout

Under the maximum theoretical buildout of General Plan 2030, there would be significantly more development than under the projected 2030 buildout analyzed in Section D, in terms of both the amount and the extent of development. As a result, air quality-related impacts would be more significant than those identified in this analysis. However, as discussed in Chapter 3, it is unlikely that maximum theoretical buildout would ever occur under General Plan 2030, and an analysis of maximum theoretical buildout is not required by CEQA.

F. Impacts and Mitigation Measures

Since there are no significant impacts related to air quality as a result of General Plan 2030, no mitigation measures are required.
This chapter discusses biological resources in Butte County and evaluates the potential biological resource impacts resulting from the spatial location of development that would be allowed by General Plan 2030. The following evaluation assesses special-status species, sensitive biological communities, wetlands, migratory species, and policies and plans intended to protect biological resources.

A. Regulatory Framework

This section summarizes key federal, State, regional and County regulations, plans and programs that provide protection and management of sensitive biological resources in Butte County.

1. Federal Regulations

The federal laws that regulate the treatment of biological resources include the Endangered Species Act, the Migratory Bird Treaty Act, and the Clean Water Act. The following sections outline the relevant principles of each.

a. Federal Endangered Species Act

The US Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) are responsible for implementation of the federal Endangered Species Act (ESA). The Act protects fish and wildlife species that are listed as threatened or endangered and their habitats. Endangered species, subspecies, or distinct population segments are those that are in danger of extinction through all or a significant portion of their range, and threatened species, subspecies, or distinct population segments are those that are likely to become endangered in the near future.

Section 9 of the ESA prohibits the take of any fish or wildlife species listed as endangered, including the destruction of habitat that prevents the species’ recovery. Take is defined as an action or attempt to hunt, harm, harass, pursue, shoot, wound, capture, kill, trap, or collect a species. Section 9 prohibi-
tions also apply to threatened species unless a special rule has been defined with regard to take at the time of listing.

Under Section 9 of the ESA, the take prohibition applies only to wildlife and fish species. However, Section 9 does prohibit the unlawful removal and reduction to possession, or malicious damage or destruction, of any endangered plant from federal land. Section 9 prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in nonfederal areas in knowing violation of any State law or in the course of criminal trespass. Candidate species and species that are proposed or under petition for listing receive no protection under Section 9.

b. Magnuson-Stevens Fishery Conservation and Management Act
The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) establishes a management system for national marine and estuarine fishery resources. This legislation requires that all federal agencies consult with NOAA Fisheries regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat (EFH). EFH is defined as “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The legislation states that migratory routes to and from anadromous fish spawning grounds are considered EFH. The phrase *adversely affect* refers to the creation of any impact that reduces the quality or quantity of EFH. Federal activities that occur outside EFH but that may, nonetheless, have an impact on EFH waters and substrate also must be considered in the consultation process.

c. Clean Water Act
The federal Clean Water Act (CWA) is administered by the US Environmental Protection Agency (EPA) and the US Army Corps of Engineers (USACE). USACE is responsible for regulating the discharge of fill material into waters of the United States, including lakes, rivers, streams and their tributaries, as well as wetlands. Wetlands are defined for regulatory purposes as areas “inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances sup-
port, a prevalence of vegetation typically adapted for life in saturated soil conditions.”

The discharge of dredged or fill material into waters of the United States is subject to permitting under Section 404 (Discharges of Dredge or Fill Material) of the CWA. Section 401 (Certification) specifies additional requirements for permit review, particularly at the State level. Project proponents must obtain a permit from USACE for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed action. USACE permits must be certified by the State Water Resources Control Board (SWRCB) in order to be valid. Thus, certification from the SWRCB should be requested at the same time an application is filed with USACE.

Certification from the California Regional Water Quality Control Board (RWQCB) is also required when a proposed activity may result in discharge into navigable waters, pursuant to Section 401 of the CWA and EPA 404(b)(1) Guidelines.

In order to obtain a Section 404 permit, a delineation of waters of the United States must be conducted to identify the extent of wetlands and other waters that will be affected by a project. The delineation of wetlands is based on the three required characteristics of wetlands: hydrophytic vegetation, hydric soils, and wetland hydrology, as described in the Arid West Supplement. Other waters of the United States are seasonal or perennial water bodies, including lakes, stream channels, drainageways, ponds, and other surface water features, that exhibit an ordinary high water mark (OHWM) but lack positive indicators for one or two of the three wetland parameters (33 CFR 328.4). Other waters of the United States are delineated based on 33 CFR

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328.3 and according to the guidelines in U.S. Army Corps of Engineers Regulatory Guidance Letter No. 05-05, dated December 7, 2005.

d. National Pollutant Discharge Elimination System Program
The 1972 amendments to the federal Water Pollution Control Act established the National Pollutant Discharge Elimination System (NPDES) permit program to control discharges of pollutants from point sources (Section 402). The NPDES Permit Program is the primary federal program that regulates point source and nonpoint-source discharges to waters of the United States. The SWRCB issues both general and individual NPDES permits for certain activities. The NPDES is discussed in detail in Section A.1.c of Section 4.7, Hydrology and Water Quality, of this EIR.

e. Migratory Bird Treaty Act
The USFWS is also responsible for implementing the Migratory Bird Treaty Act (MBTA). The MBTA implements a series of treaties between the United States, Mexico and Canada that provide for the international protection of migratory birds. Wording in the MBTA makes it clear that most actions that result in “taking” or possession (permanent or temporary) of a protected species can be a violation of the Act. The word “take” is defined as meaning “pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture or collect.” The provisions of the MBTA are nearly absolute; “except as permitted by regulations” is the only exception. Examples of permitted actions that do not violate the law are the possession of a hunting license to pursue specific game birds, legitimate research activities, display in zoological gardens, bird-banding and similar activities.

2. State Regulations
The most relevant State laws regulating biological resources are the California Endangered Species Act, the California Fish and Game Code and the California Native Plant Protection Act, each of which is described below.
a. California Endangered Species Act
The California Endangered Species Act (CESA) establishes State policy to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that State agencies should not approve projects that jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that would affect species that are on the federal and State lists, compliance with the federal ESA satisfies CESA if the California Department of Fish and Game (DFG) determines that the federal incidental take authorization is consistent with CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of species that are only State listed, the project proponent must apply for a take permit under Section 2081(b) of the California Fish and Game Code.

b. California Fish and Game Code
Under the California Fish and Game Code, the DFG provides protection from “take” for a variety of species. The DFG also protects streams, water bodies and riparian corridors through the streambed alteration agreement process under Section 1601 to 1606 of the California Fish and Game Code. The Fish and Game Code stipulates that it is “unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake” without notifying DFG, incorporating necessary mitigation and obtaining a streambed alteration agreement. DFG’s jurisdiction extends to the top of banks and often includes the outer edge of riparian vegetation canopy cover.

c. California Native Plant Protection Act
The California Native Plant Protection Act of 1977 (CNPPA) prohibits importation of rare and endangered plants into California, “take” of rare and endangered plants and sale of rare and endangered plants. CESA defers to the CNPPA, which ensures that State-listed plant species are protected when State agencies are involved in projects subject to CEQA. In this case, plants listed as rare under the CNPPA are not protected under CESA, but rather under CEQA.
d. Sacramento River Conservation Area
The State Legislature passed Senate Bill (SB) 1086 in 1986, which called for a management plan for the Sacramento River and its tributaries that would protect, restore, and enhance both fisheries and riparian habitat. As a result of SB 1086, in 2001 the Department of Water Resources developed the Sacramento River Conservation Area Handbook, which set forth a management program for the Sacramento River Conservation Area. The overall goal of the management program for the Sacramento River Conservation Area is to preserve remaining riparian habitat and reestablish a continuous riparian ecosystem along the Sacramento River between Redding and Chico and to reestablish riparian vegetation along the river from Chico to Verona.

3. Butte Regional Habitat Conservation Plan and Natural Community Conservation Plan
The Butte County Association of Governments (BCAG) is coordinating the development of a comprehensive conservation planning effort, the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP). This Plan will include an assessment of the county’s natural resources and a strategy for protecting those resources while allowing for future growth and development in Butte County. The focus of the Butte Regional HCP/NCCP is on the western half of the county, where there is the greatest conflict between urban development and federal and State protected species. The goals of the Butte Regional HCP/NCCP include mapping the range of federal- and State-protected species, important habitats, and ecosystems; providing for or contributing to the recovery of endangered species; contributing to the conservation of natural communities and their associated native species; and allowing for a streamlined process of environmental permitting. Since the summer of 2007, two of the five phases of the Butte Regional HCP/NCCP have been completed, with a final project completion date expected in mid-2011.

4. Butte County Oak Woodlands Management Plan

In 2007, Butte County adopted the Oak Woodlands Management Plan Resolution, which is intended to provide incentive-based, voluntary opportunities to private landowners who wish to pursue oak woodland conservation strategies as provided by the 2001 California Oak Woodlands Conservation Act. This resolution adopts the 2006 Oak Woodland Resources Assessment Report, developed by the Butte County Resource Conservation District, as the Butte County Oak Woodlands Management Plan (Management Plan). Through the Management Plan, the County acknowledges the values associated with oak woodlands, and recognizes and supports private landowners who choose to voluntarily adopt measures to ensure oak woodland viability through participation in the Oak Woodlands Conservation Program. The Management Plan also provides for review and acceptance of individual grant applications by the Butte County Board of Supervisors before submitting them to the State Wildlife Conservation Board.

B. Existing Conditions

Butte County has a high diversity of biological communities because it extends from the Sacramento Valley floor to the Sierra Nevada and Cascade Mountains over an elevational range from approximately 50 feet to more than 8,000 feet above sea level. The county includes five different geographic subregions:

♦ The Sacramento Valley in the western portion of the county.
♦ The Cascade Range foothills in the north-central portion of the county.
♦ The northern Sierra Nevada foothills in the south-central portion of the county.
♦ The high Cascade Range mountains in the northeastern portion of the county.

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The northern high Sierra Nevada mountains in the southeastern portion of the county.

Most of the biological communities in the Sacramento Valley portion of the county have been substantially altered since the mid-1800s, when the area was first hydraulically mined, then dredged for gold, and then developed for agriculture.

1. Biological Communities

There are ten general types of biological communities that occur in Butte County, which are all discussed in this section and shown in Figure 4.4-1. The distribution of general biological community types is closely associated with the varying topography and hydrology of the geographic subregions. Much of the Sacramento Valley subregion supports agricultural land, annual grassland, and wetlands, while the higher elevation foothills subregions are primarily grassland, oak woodland, and chaparral communities. The highest elevations in the Cascade Range and Sierra Nevada are conifer forest and chaparral communities. Drainages and open water occur within all subregions. Most stream corridors support riparian woodland communities, although these are not specifically shown in Figure 4.4-1 due to their relatively small scale.

a. Conifer Forest

Many conifer forest types occur within Butte County, all of which are dominated by conifers but vary in the dominant species and elevations at which they occur. These conifer forest types are described below.

- Montane hardwood-conifer forests occur at lower elevations below 4,000 feet. In this forest type, California black oak (Quercus kelloggii), bigleaf maple (Acer macrophyllum), white alder (Alnus rhombifolia), and dogwood (Cornus sp.) occur with conifers such as Douglas fir (Pseudotsuga menziesii var. menziesii), incense cedar (Calocedrus decurrens), and ponderosa pine. This forest type generally has little understory except in areas of disturbance.
VEGETATIVE COMMUNITIES AND WILDLIFE AREAS

Figure 4.4-1

Sources: Butte County GIS, 2009; California Department of Forestry and Fire Protection, Fire and Resource Assessment Program, 2009; California Department of Fish and Game, 2009.
● **Ponderosa pine** forests generally occur at elevations below 7,000 feet and include stands of pure ponderosa pine (*Pinus ponderosa*) as well as areas with associate species, such as Douglas fir, sugar pine (*Pinus lambertiana*), white fir (*Abies concolor*), incense cedar, Jeffrey pine (*Pinus jeffreyi*), and others. Stands also may include a shrub and herbaceous layer.

● **Sierran mixed conifer** forests occur in areas of greater precipitation than ponderosa pine forest. Sierran mixed conifer is a multilayered forest type at middle elevations in the northern Sierra that includes conifers such as white fir, Douglas fir, ponderosa pine, sugar pine, and incense cedar with California black oak. Many species of shrubs, grasses, and forbs occur in the understory of this forest type.

● **Red fir** forests occur between 6,000 and 9,000 feet in elevation and are generally dominated by red fir with few other species and little understory because of the dense shade and thick layer of dropped needles on the ground.

● **Subalpine conifer** forests occur at the highest elevations in Butte County. In the northern Sierra, this forest type is dominated by low-growing conifers, including mountain hemlock (*Tsuga mertensiana*), western white pine (*Pinus monticola*), lodgepole pine (*Pinus contorta* ssp. *murrayana*), and red fir (*Abies magnifica* var. *magnifica*). The understory is usually sparse, consisting of shrubs, grasses, and annuals.

Conifer forests provide habitat for a large number of wildlife species. The large variety of plant species within conifer forests provides a diversity of food and cover for wildlife. Berries from deerbrush (*Ceanothus integerrimus*) and other shrubs and a variety of grasses and forbs provide essential resources for foraging wildlife. Mature forests are valuable habitat for cavity-nesting birds.4 Wildfife species that are common in this habitat type include Steller’s jay (*Cyanocitta stelleri*), hairy woodpecker (*Picoides villosus*), mountain

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chickadee (*Parus gambeli*), western gray squirrel (*Sciurus griseus*), porcupine (*Erethizon dorsatum*), gray fox (*Urocyon cinereoargenteus*), and blacktail deer (*Odocoileus hemionus*).^5^ Special-status wildlife species that may occur in this community type include the bald eagle, northern goshawk (*Accipiter gentilis*), California spotted owl (*Strix occidentalis occidentalis*), Sierra Nevada red fox (*Vulpes vulpes necator*), Pacific fisher (*Martes pennanti*), and California wolverine (*Gulo gulo luteus*).

b. Oak Woodland

Oak woodlands are scattered throughout the county but are concentrated in the transition area between the lower valley and higher elevations of the county. Oak woodland community types in Butte County are described below.

♦ **Valley oak woodland** can vary from savannas of annual grasslands with few trees to dense stands of trees. This woodland is dominated by valley oak (*Quercus lobata*), but can have associates of western sycamore (*Platanus racemosa*), California black walnut (*Juglans californica var. bindsi*), interior live oak (*Quercus wislizenii*), box elder (*Acer negundo var. californica*), and blue oak (*Quercus douglasii*). Shrub species include California coffeeberry (*Rhamnus californica*), poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and blackberry (*Rubus sp.*). Annual grasses and forbs dominate the herbaceous layer.

♦ **Blue oak woodland** occurs in the Sierra Nevada foothills and is dominated by blue oak, with interior live oak and valley oak as associates. Dominant shrub species include manzanita (*Arctostaphylos sp.*), ceanothus

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(Ceanothus sp.), redberry (Rhamnus crocea), California coffeeberry, poison oak, and California buckeye (Aesculus californica).

- **Blue oak–foothill pine** is co-dominated by foothill pines (Pinus sabiniana) and blue oaks and occurs at slightly higher elevations than blue oak woodland. Other representative tree species include interior live oak, valley oak, and California buckeye. The understory of blue oak–foothill pine woodlands in Butte County contains several shrub species clumped together and interspersed with patches of annual grassland. Dominant shrub species include manzanita, ceanothus, redberry, California coffeeberry, poison oak, blue elderberry (Sambucus mexicana), gooseberry (Ribes sp.), silver lupine (Lupinus albilfrons), and western redbud (Cercis occidentalis).

Oak woodlands are important habitats because of their high value to wildlife in the form of nesting sites, cover and food.6 Birds associated with oak woodlands include acorn woodpeckers (Melanerpes formicivorus), Nuttall’s woodpeckers (Picoides nuttallii), western scrub jay (Aphelocoma californica), yellow-billed magpie (Pica nuttallii), and many warblers and flycatchers. Cavities in oak trees are important nesting sites for American kestrel (Falco sparverius), tree swallow (Tachycineta bicolor), oak titmouse (Baeolophus inornatus), house wren (Troglodytes aedon), and western bluebird (Sialia mexicana). Tree cavities also provide important roosting habitat for some species of bats. Oak woodlands provide nesting sites for raptors, such as red-tailed hawks (Buteo jamaicensis), red-shouldered hawks (Buteo lineatus), and great horned owls (Bubo virginianus).7 Mammals associated with woodlands include western gray squirrel (Sciurus griseus), pallid bat (Antrozous pallidus), bobcat (Lynx

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Acorns are an important food source for species such as California quail (*Callipepla californica*), wild turkey (*Meleagris gallopavo*), western gray squirrel, and blacktail deer. Special-status wildlife species that may occur in this community type include the western spadefoot toad (*Spea hammondii*), golden eagle and Townsend’s big-eared bat (*Corynorhinus townsendii*). Rock cliffs in oak woodland near Table Mountain, Lake Oroville and other portions of Butte County provide suitable nesting habitat for the American peregrine falcon and golden eagle.

Oak woodland is a common habitat locally and regionally and is not considered by the DFG to be a sensitive natural community; however, native oak trees and woodland habitats are declining statewide because of development and land management practices. For this reason, oak woodlands should be considered sensitive because they provide important habitat for local resident wildlife and are limited in extent compared with their historical distribution.

c. Riparian Woodland
Riparian woodland occurs throughout Butte County along portions of the Sacramento River, Feather River, Thermalito Afterbay and Forebay, Thermalito Diversion Pool, and numerous smaller perennial and ephemeral drainages. Riparian woodlands also commonly are associated with dredge tailings. Riparian woodlands in Butte County are typically dominated by a mixture of trees and shrubs, including Fremont cottonwood (*Populus fremontii*), valley oak, Oregon ash (*Fraxinus latifolia*), Himalayan blackberry (*Rubus discolor*), and a variety of willows (*Salix* sp.).

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Because the vegetation is diverse and well developed, riparian forest provides high-value habitat for wildlife, including several special-status species, in the form of food, water, and migration and dispersal corridors, as well as escape, nesting, and thermal cover.\textsuperscript{10} Invertebrates, amphibians, fish, and aquatic reptiles live in aquatic and adjacent upland habitats. Steelhead and Chinook salmon rely on riparian habitat for food, cover, and regulation of water temperature. Raptors, herons, egrets, and other birds nest in the upper canopy. Various songbirds use the shrub canopy, and cavity-nesting birds, such as Nuttall’s woodpecker and oak titmouse, occupy dying trees and snags.\textsuperscript{11} Several mammals, including raccoons (\textit{Procyon lotor}), Virginia opossum (\textit{Didelphis virginiana}), and striped skunks (\textit{Mephitis mephitis}) are common in riparian habitats.\textsuperscript{12}

Elderberry shrubs may be present within riparian woodlands in Butte County, which provide habitat for the federally-listed valley elderberry longhorn beetle. Riparian woodlands also provide nesting habitat for several special-status raptors, including the bald eagle, Swainson’s hawk, and white-tailed kite. Although a very rare species, western yellow-billed cuckoos potentially could nest in very dense areas of riparian woodland along the Feather River. Cavities within riparian trees along waterways in Butte County may be used as roosting sites by some species of special-status bats, such as the pallid bat (\textit{Antrozous pallidus}).

Riparian habitats are considered sensitive natural communities and should be given special consideration in Butte County because they provide several im-


important ecological functions, including streambank stabilization, water quality maintenance, and essential habitat for wildlife and fisheries resources.

d. Chaparral

Chaparral occurs on foothill slopes, within the understory of woodlands, and at higher elevations in Butte County. This community is adapted to wildfires and at lower elevations is dominated by common manzanita, whiteleaf manzanita (*Arctostaphylos viscida*), and scrub oak (*Quercus berberidifolia*), with associated species such as toyon, California buckeye, and poison oak. At higher elevations, whiteleaf manzanita may be the only dominant shrub, and it often occurs on serpentine or gabbro substrates. Chaparral also provides suitable habitat for many special-status plant species.

Chaparral provides habitat for a variety of birds and mammals. Numerous rodents, deer, and other herbivores are common in chaparral communities. Montane chaparral provides important summer range foraging areas, escape cover, and fawning habitat for deer. Rabbits and hares will eat twigs, evergreen leaves, and bark from chaparral in fall and winter when there isn’t an abundance of grasses. Shrubby vegetation provides mammals with shade during hot weather and protection from wind in the winter. Chaparral provides seeds, fruits, insects, and protection from predators and the weather in addition to singing, roosting, and nesting sites for many species of birds.\(^{13}\) Sagebrush lizard (*Sceloporus graciosus*), California quail (*Callipepla californica*), Bewick’s wren (*Thryomanes bewickii*), wrentit (*Chamaea fasciata*), brush mouse (*Peromyscus boylii*), and black-tailed deer are common in chaparral habitats.\(^{14}\)


Special-status wildlife species that may occur in chaparral habitat include the California horned lizard (*Phrynosoma coronatum frontale*) at lower elevations and the Sierra Nevada snowshoe hare (*Lepus americanus taboensis*) at upper elevations.

Mixed chaparral is a common habitat regionally and is not considered by the DFG to be a sensitive natural community.

e. Annual Grassland

Annual grasslands occur throughout Butte County. Large, open areas of annual grasslands occur primarily in the central portion of the county and are typically grazing pastures for livestock. Annual grasslands encompass vernal pool terrains and also form the understory for oak woodland and occur as vacant parcels in developed areas. Annual grasslands in Butte County are dominated by nonnative annual grasses with intermixed annual and perennial forbs, including wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus* ssp. *rigidus*), soft chess (*Bromus hordeaceus*), fescue (*Festuca* sp.), clover (*Trifolium variegatum*), wild mustard (*Brassica* sp.), and wild radish (*Raphanus raphanistrum*).

Annual grasslands are used by many wildlife species for foraging. Some of these species also breed in annual grassland if special habitat features, such as cliffs, caves, ponds, or woody plants, are available for breeding or resting or as escape cover. Reptiles that breed in annual grassland habitats include western fence lizards (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), and western rattlesnake (*Crotalus viridis*). Grasslands provide foraging habitat for wide-ranging species such as red-tailed hawk, turkey vulture (*Cathartes aura*), American kestrel, and northern harrier (*Circus cyaneus*). Mammals typically found in this habitat include California vole (*Microtus californicus*), western harvest mouse (*Reithrodontomys megalotis*), California ground squirrel, black-tailed jackrabbit (*Lepus californicus*), and coyote (*Canis latrans*).

In addition, many species that nest or roost in adjacent woodlands may forage in grasslands, including the western bluebird, western kingbird (*Tyrannus verticalis*), and some species of bats.

Special-status wildlife species that could breed or nest within annual grasslands in Butte County include the California horned lizard, northern harriers, western burrowing owls (*Athene cunicularia hypugea*), and American badgers (*Taxidea taxus*). Trees in annual grasslands provide nesting habitat for white-tailed kite, Swainson’s hawk, and loggerhead shrike (*Lanius ludovicianus*). Annual grasslands also provide important foraging habitat for special-status resident and wintering birds, including Swainson’s hawk, white-tailed kite, northern harrier, golden eagle, and loggerhead shrikes.

Annual grassland is a common habitat locally and regionally and is not considered by the DFG to be a sensitive natural community.

f. Open Water

Open water communities in Butte County include several large reservoirs, numerous small ponds throughout agricultural areas, and riverine habitats in perennial and ephemeral drainages. Most of these areas are regulated under the jurisdiction of the USACE and the RWQCB.

i. Reservoirs

Butte County has over 30 reservoirs,\(^\text{16}\) the largest of which are Lake Oroville and the Thermalito Forebay and Afterbay, which are all located on the Feather River and formed by earthen dams. Lake Oroville is located northeast of Oroville and is the principal water storage facility of the State Water Project, which conserves and delivers water to over two-thirds of California’s

\(\text{latrans}\).\(^\text{15}\)


population. The Thermalito Forebay and Afterbay are also part of the State Water Project, and they provide hydroelectric power outside of Butte County.

The Thermalito Forebay and Afterbay provide important resting and foraging habitat for migratory waterfowl traveling along the Pacific Flyway. The Thermalito Afterbay is part of the larger Oroville Wildlife Area, which is shown in Figure 4.4-1. The eastern portion of the preserve surrounding the Feather River contains numerous dredge tailings and borrow pits. These areas support riparian woodlands, freshwater marsh and open water habitats. More than 170 species of resident and migratory birds use this area, in addition to mammals such as river otter (*Lutra canadensis*), beaver (*Castor canadensis*), raccoon and muskrat (*Ondatra zibethica*). A known heron rookery is also present within the Oroville Wildlife Area along Larkin Road. Thermalito Forebay is managed by the DFG as a put-and-take fishery of 0.5-pound rainbow and brook trout, with small numbers of warmwater fish. Because the Thermalito Afterbay connects with the Forebay, some trout migrate into the Afterbay. However, the primary fishery in the Afterbay is largemouth bass.17

### ii. Ponds

Ponds are one type of lacustrine, or lake-related, habitat that includes areas of shallow open water, although areas of rooted freshwater marsh or floating plants may occur within this habitat. Ponds may be naturally occurring or human-made for stock and other uses. Ponds provide habitat for amphibians and aquatic reptiles such as the Pacific treefrog, western toad (*Bufo boreas*), and common garter snake (*Thamnophis sirtalis*).18 Special-status wildlife species commonly associated with ponds are the California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), and western pond turtle (*Actinemys marmorata*). Many ponds are stocked with

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non-native fish such as bass species, sunfish species, and mosquitofish (*Gambusia affinis*).

### iii. Rivers, Creeks, and Other Drainages
Perennial and ephemeral drainages occur throughout Butte County. These drainages typically are associated with riparian habitat described above and may support areas of freshwater marsh. The fisheries for the primary drainages within Butte County are described below.

* Sacramento River. This river forms Butte County’s western border and is California’s largest river. The Sacramento River watershed benefits from a large snowpack, which supports flow throughout the spring and early summer. Within Butte County, a number of common fish species are expected to occur in the Sacramento River. These include Sacramento sucker (*Catostomus occidentalis*), Sacramento pikeminnow (*Ptychocheilus grandis*), hardhead (*Mylopharodon conocephalus*), hitch (*Lavinia exilicauda*), threespine stickleback (*Gasterosteus aculeatus*), and tule perch (*Hysterocephalus traski*), in addition to introduced species. Special-status fish species that occur in the Sacramento River include all runs (fall, late-fall, winter, and spring) of Chinook salmon, Central Valley steelhead, and green sturgeon. River lamprey (*Lampetra ayresi*) and hardhead may occur in the Sacramento River.

* Feather River. The Feather River watershed drains more than 3,200 square miles of land from the crest of the Sierra Nevada west to the Sacramento River, and supports a diverse assemblage of native and nonnative species. Anadromous and other migratory species include Central Valley fall-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, white sturgeon (*Acipenser transmontanus*), green sturgeon, Pacific lamprey (*Lampetra tridentata*), striped bass (*Morone saxatilis*), and American shad (*Alosa sapidissima*). Also, the Feather River hatchery produces and releases fall- and spring-run Chinook salmon and steelhead into the Feather River and the Sacramento-San Joaquin River Delta. Native freshwater fish present in the Feather River include hardhead, speckled dace (*Rhinichthys osculus*), California roach (*Lavinia symmetricus*), Sacramento sucker, and Sacramento pikeminnow. Nonnative
fish species, such as mosquitofish, smallmouth bass (*Micropterus dolomieu*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*), and re-dear sunfish (*L. microlophus*) are also present.¹⁹

♦ **Butte Creek.** This creek supports the largest remaining run of wild spring-run Chinook salmon in California. Additionally, this creek and its tributaries support small populations of steelhead trout and late-fall-run Chinook salmon. An estimate of spring-run Chinook salmon in spawning year 2008 was 11,136²⁰ and an estimate of fall-run fish was 500.²¹ Problems in Butte Creek include inadequate fish passage over diversion dams, un-blocked drains that attract and strand fish, and poor water quality. Areas of Upper Butte Creek have water temperatures above tolerance levels for salmonids, which can result in mortality of over-summering adults, a situation that was observed in 2002.²² Restoration of Butte Creek and salmonid habitat is being supported by the Anadromous Fish Restoration Program (AFRP) and other organizations.²³

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Big Chico Creek. This creek supports small, non-sustaining populations of spring-run Chinook salmon. In addition, there is evidence of small populations of steelhead trout and late fall-run salmon occurring within this creek. Historically, fall-run Chinook salmon were the main salmonid species in Big Chico Creek, but they have declined since, and a remnant population may remain. Steelhead trout also have decreased to low populations in this waterway. The decline of these populations is attributed to a lack of access to the upper watershed due to the shifting of massive boulders at Salmon Hole in Upper Bidwell Park and a broken fish ladder. Additional hardships for migratory fish include intermittent flows in Lindo Channel, poor fish passage at the One Mile Recreation Area of Bidwell Park, and inadequate fish passage at the Five-Mile Culvert Dam and Iron Canyon. Although excellent spawning gravels are available in Lindo Channel, inconsistent flows prevent successful spawning in most years. The DFG has completed the major portion of a plan to restore the anadromous fishery of Big Chico Creek.24

A number of other creeks occur in Butte County, from the higher elevation areas down into the lower valley area, where the major creeks occur and drain to the rivers. Butte County also has human-made canals, such as the Western Canal, Cherokee Canal, and Main Drainage Canal, and irrigation ditches. Open water and riverine areas provide habitat for a variety of wildlife. Birds such as herons and belted kingfishers (Ceryle alcyon) forage in these communities, primarily along the water’s edge. Many species of insectivorous birds (e.g. swallows, swifts, and flycatchers) catch their prey over open water. Mammals that can be found in and along riverine habitat include river otter, muskrat, beaver, and raccoon.


Special-status wildlife species that could occur within perennial and ephemeral drainages in Butte County include the California red-legged frog, foothill yellow-legged frog (*Rana boylii*), Cascades frog (*Rana cascadae*), Sierra Nevada yellow-legged frog (*Rana sierrae*), and northwestern pond turtle (*A. m. marmorata*). All of these species have been recorded within Butte County and are presumed extant.25 Banks along larger rivers in the county may provide suitable nesting habitat for bank swallow.

Drainages are considered “other waters of the United States” by USACE and are regulated by USACE, DFG, and USFWS.

**g. Wetland**

Wetlands are considered sensitive natural communities by several resource agencies and should be given special consideration in Butte County because they provide a variety of important ecological functions and essential habitat for wildlife resources. Natural wetland habitats are steadily declining compared to their historical distribution as a result of land management practices and development activities. USACE, DFG, and USFWS have policies and regulations that protect wetland habitats. Three main categories of wetlands occur within Butte County: freshwater marsh, wet meadow and vernal pool. These wetland types are described below.

**i. Freshwater Marsh**

Freshwater marsh occurs along the margins of drainages and open water habitats in Butte County. Flooded rice fields also support patches of freshwater marsh. Characteristic vegetation within freshwater marsh includes cattails (*Typha* sp.), rushes (*Juncus* sp.), and sedges (*Carex* sp.).

Freshwater marsh is among the most productive wildlife habitats in the state. Vegetation associated with freshwater marsh provides foraging, nesting, and refuge habitat for numerous wildlife species that also occur in the adjacent

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open water. Common wildlife that is expected to occur in freshwater marsh habitats within Butte County include the Pacific tree frog (*Hyla regilla*), common garter snake, great egret (*Ardea alba*), great blue heron (*Ardea herodias*), red-winged blackbird (*Agelaius phoeniceus*), and song sparrow (*Melospiza melodia*).

Within Butte County, special-status wildlife species, such as the California red-legged frog and giant garter snake, may take cover and forage within freshwater marsh vegetation, in drainages and irrigation canals. Extensive areas of freshwater marsh may also provide suitable nesting habitat for northern harrier, short-eared owl, and tricolored blackbird.

**Wet Meadow**

Wet meadow habitat occurs at higher elevations in the eastern portion of Butte County. Dominant species in wet meadows include herbaceous wetland plants such as sedges, rushes, spikerush (*Eleocharis spp.*), bent grass (*Agrostis spp.*), and oatgrass (*Danthonia spp.*). There are generally sparse or no shrubs or trees in wet meadows. Special-status plants associated with wet meadow habitat include Butte County calycadenia (*Calycadenia oppositifolia*), Butte County catchfly (*Silene occidentalis ssp. longistipitata*), Butte County fritillary (*Fritillaria eastwoodiae*), Quincy lupine (*Lupinus dalesiae*), and long-leaved starwort (*Stellaria longifolia*).

Wet meadows provide sources of drinking water for deer and other mammals and various species of birds. Deer and elk (*Cervus canadensis*) also may feed

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on forbs and grasses in wet meadows. Open areas of water, such as pools and streams, may be occupied by trout and waterfowl. If dense vegetation is present within the meadow, certain species of birds, such as yellow-headed (*Xanthocephalus xanthocephalus*) and red-winged blackbirds, may nest in these areas.\(^{28}\) Amphibians such as Pacific tree frogs, western toads, Sierra Nevada yellow-legged frogs, and long-toed salamanders (*Ambystoma macrodactylum*) may occur in wet meadows.\(^{29}\) If the meadow dries in the summer, small mammals may forage in the grasses.\(^{30}\)

Wet meadows in Butte County may provide suitable habitat for special-status wildlife species including the Cascades frog, Sierra Nevada yellow-legged frog, northwestern pond turtle, and tricolored blackbird (*Agelaius tricolor*).

### iii. Vernal Pool

Vernal pools occur primarily in the central portion of Butte County, with a large area of northern volcanic mud-flow vernal pools located north and south of Cottonwood Road between Highways 99 and 70. Vernal pools in Butte County occur within annual grasslands and represent a variety of pool types, including northern hardpan and northern volcanic mud-flow pools. Representative plant species observed within these pools includes hairgrass (*Eleocharis sp.*), coyote thistle (*Eryngium sp.*), navarretia (*Navarretia sp.*), slender woollyheads (*Psilocarphus tenellus*), and calicoflower (*Downingia sp.*).

Five federally-listed or State-listed plant species that rely on vernal pool habitat have been recorded as occurring within Butte County: Hoover’s spurge,

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Butte County meadowfoam, hairy Orcutt grass, slender Orcutt grass, and Greene’s tuctoria.31

Amphibians, such as Pacific tree frogs and western toads, use vernal pools and seasonal swales for breeding. Insect larvae and aquatic invertebrates commonly occur in vernal pools and provide a valuable food source for amphibians as well the many birds that overwinter in or migrate through Butte County. Large vernal pools and seasonal swales provide foraging habitat for a number of bird species, including killdeer (*Charadrius vociferous*), greater yellowlegs (*Tringa melanoleuca*), great egret (*Ardea alba*), and black-necked stilt (*Himantopus mexicanus*).

Vernal pools provide habitat for several special-status species, including conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, and western spadefoot toad (*Spea hammondii*). Occurrences of conservancy fairy shrimp, western spadefoot toad, vernal pool fairy shrimp and vernal pool tadpole shrimp have been reported at two, three, 15 and 18 locations, respectively, in Butte County.32

h. Agricultural Land

Areas used for agriculture are scattered throughout the western half of Butte County. Row crops and rice fields occur predominantly in mostly flat areas west of Highway 99. Small olive groves occur on hillsides, and citrus orchards occur in the lower elevations. Olives and oranges have been grown commercially in the foothills for more than 100 years.

Agricultural lands are established on fertile soils that historically supported abundant wildlife. The quality of habitat for wildlife is greatly diminished

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when the land is converted to agricultural uses and intensively managed. Many species of rodents and birds have adapted to agricultural lands, but they are often controlled by fencing, trapping, and poisoning to prevent excessive crop losses.\textsuperscript{33} However, depending on the crop pattern and proximity to native habitats, row crops and rice fields can provide relatively high-value habitat for wildlife, particularly as foraging habitat. Raptor species use row- and grain-crop agricultural lands for foraging because several species of common rodents are found in agricultural fields. Rice fields and fallow agricultural fields provide important foraging and resting habitat for migrating and wintering waterfowl and shorebirds. Wildlife species associated with agricultural lands include mourning dove (\textit{Zenaida macroura}), American crow (\textit{Corvus brachyrhynchos}), Brewer’s blackbird (\textit{Euphagus cyanocephalus}), sandhill crane (\textit{Grus canadensis}), various raptor species, egrets, and many species of rodents.\textsuperscript{34}

Special-status wildlife species associated with agricultural lands, such as the northern harrier and giant garter snake, may use adjacent irrigation canals and freshwater marsh vegetation for foraging or breeding. Giant garter snakes have the potential to occur in irrigation canals and can use the adjacent agricultural lands as foraging and basking habitat. Swainson’s hawks also will forage in agricultural lands. Irrigated pastures may provide suitable nesting habitat for the northern harrier and short-eared owl.


i. Barren Land
Barren land is unvegetated and may include areas of vertical riverbanks of loose soil at lower elevations and exposed rock in alpine areas above the tree line or between high-elevation conifer forests. Urban areas also may include barren land with large expanses of pavement or buildings where there is little or no vegetation.

Because of the lack of vegetation, barren ground has a limited use by wildlife. However, some species, such as western burrowing owl, prefer areas with limited or very low-growing vegetation. In addition, bank swallows dig nesting holes in vertical banks along rivers.

j. Urban
Urbanized portions of Butte County include Chico, Paradise, Oroville, Biggs, and Gridley, as well as other small unincorporated communities. Biological communities in these areas are relatively limited and support a predominance of horticultural plant species rather than native species.

Urban areas generally have a lower value for wildlife because of human disturbance and a lack of vegetation. Wildlife species that use these areas are typically adapted to human disturbance. However, densely vegetated “urban forests” can provide habitat for songbirds and some raptor species. Wildlife species associated with urban residential and suburban areas include western fence lizard, western scrub jay, northern mockingbird (Mimus polyglottos), house finch (Carpodacus mexicanus), rock dove (Columba livia), fox squirrel (Sciurus niger), raccoon, opossum, and striped skunk.

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2. Special-Status Species

Special-status species are plants and animals that are legally protected under the ESA, CESA or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species are defined as:

♦ Species listed or proposed for listing as threatened or endangered under the ESA (50 CFR 17.11 [listed animals], 50 CFR 17.12 [listed plants], and various notices in the Federal Register [FR] [proposed species]).

♦ Species that are candidates for possible future listing as threatened or endangered under the ESA (72 FR 69034, December 6, 2007).

♦ Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 California Code of Regulations [CCR] 670.5).

♦ Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380).

♦ Plants listed as rare under the CNPPA (California Fish and Game Code 1900 et seq).

♦ Plants considered by the California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (California Native Plant Society, 2008).

♦ Plants listed by CNPS as plants about which more information is needed to determine their status, and plants of limited distribution, which may be included as special-status species on the basis of local significance or recent biological information (California Native Plant Society, 2008).

♦ Animal species of special concern to the DFG (California Department of Fish and Game, 2009).

Animals fully protected in California (California Fish and Game Code 3,511 [birds], 4,700 [mammals], 5,050 [amphibians and reptiles], and 5,515 [fish]).

a. Special-Status Plants
A total of 108 special-status plants were identified as potentially occurring or documented in the California Natural Diversity Database (CNDDDB) and California Native Plant Society’s (CNPS) Inventory as occurring in Butte County; these species are listed in Table 4.4-1. Of these species, five (Hoover’s spurge, Butte County meadowfoam, hairy Orcutt grass, slender Orcutt grass, and Greene’s tuctoria) are federally- or State-listed. In addition, four of these listed species (Hoover’s spurge, Butte County meadowfoam, hairy Orcutt grass, and Greene’s tuctoria) and five non-listed species (Ferris’s milkvetch, lesser saltscale, Ahart’s dwarf rush, Butte County checkerbloom, and Butte County golden clover) are proposed as covered species in the Butte Regional HCP/NCCP, and have been documented as occurring in Butte County. Locations of special-status plant occurrences documented in the CNDDDB are presented in Figure 4.4-2.


39 This number is different than the 2006 number cited in the Conservation and Open Space Element of the General Plan because it is based on updated 2009 data.


<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Listing Status</th>
<th>Geographic Distribution</th>
<th>Habitat Associations; Elevation</th>
<th>Flowering Period</th>
<th>Species Occurrences and Habitat in Butte County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henderson’s bent grass</td>
<td><em>Agrostis hendersonii</em></td>
<td>–/–/3.2</td>
<td>Scattered locations in Central Valley and adjacent foothills: Butte, Calaveras, Merced, Placer, Shasta, and Tehama Counties; Oregon</td>
<td>Moist places in valley and foothill grassland, vernal pools; 70-305 meters</td>
<td>Apr-May</td>
<td>Brush Creek; habitat present in grasslands and vernal pools</td>
</tr>
<tr>
<td>Jepson’s onion</td>
<td><em>Allium jepsonii</em></td>
<td>–/–/1B.2</td>
<td>Sierra Nevada Foothills in Butte, El Dorado, Placer, and Tuolumne Counties</td>
<td>Serpentine or (volcanic) basalt outcrops in oak woodland, chaparral, and lower montane coniferous forest; 300-1,320 meters</td>
<td>May-Aug</td>
<td>Berry Creek, Cherokee, Paradise East, Pulga; habitat potentially present in oak woodlands</td>
</tr>
<tr>
<td>Sanborn’s onion</td>
<td><em>Allium sanbornii</em> var. <em>sanbornii</em></td>
<td>–/–/4.2</td>
<td>Cascade Range foothills and Sierra Nevada Foothills, from Shasta County to Calaveras County; Oregon</td>
<td>Gravelly or usually serpentine soils in chaparral, cismontane woodland, and lower montane coniferous forest; 260-1,510 meters</td>
<td>May-Sep</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in chaparral, oak woodland, and coniferous forest</td>
</tr>
<tr>
<td>Moss: slender silver-moss</td>
<td><em>Anomobryum julaceum</em> (formerly <em>A. filiforme</em>)</td>
<td>–/–/2.2</td>
<td>Scattered occurrences in California from Humboldt and Shasta south to Los Angeles Counties; Oregon and elsewhere</td>
<td>On damp rock and soil on outcrops, usually on roadcuts in broadleafed upland forest, lower montane coniferous forest, North Coast coniferous forest; 100-1,000 meters</td>
<td>N/A</td>
<td>Pulga; habitat present in coniferous forest</td>
</tr>
<tr>
<td>True’s manzanita</td>
<td><em>Arctostaphylos mewukka</em> ssp. <em>truei</em></td>
<td>–/–/4.2</td>
<td>Northern Sierra Nevada Foothills: Butte, Plumas, Nevada, Placer, and Yuba Counties</td>
<td>Chaparral, lower montane coniferous forest; 425-1,310 meters</td>
<td>Feb-May</td>
<td>Paradise East; Forbestown; habitat present in chaparral and coniferous forest</td>
</tr>
<tr>
<td>Depauperate milk-vetch</td>
<td><em>Astragalus pauperculus</em></td>
<td>–/–/4.3</td>
<td>Cascade Range foothills, northern Sacramento Valley in Butte, Placer, Shasta, Tehama, and Yuba Counties</td>
<td>In seasonally wet areas on volcanic soils in chaparral, cismontane woodland, valley and foothill grassland in seasonally wet areas or on volcanic soils; 60-1,120 meters</td>
<td>Mar-Jun</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in annual grassland, chaparral, and oak woodland</td>
</tr>
</tbody>
</table>
### Special-Status Plant Species Known or With Potential to Occur in Butte County (Continued)

<table>
<thead>
<tr>
<th>Common Name</th>
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<th>Listing Status</th>
<th>Geographic Distribution</th>
<th>Habitat Associations; Elevation</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ferris’s milk-vetch*</td>
<td><em>Astragalus tener</em> var. <em>ferrisiae</em></td>
<td>–/–/1B.1</td>
<td>Historical range included the Central Valley from Butte to Alameda County but currently only occurs in Butte, Glenn, Colusa, and Yolo Counties</td>
<td>Seasonally wet areas in meadows and seeps, subalkaline flats in valley and foothill grassland; 5-75 meters</td>
<td>Apr-May</td>
<td>Butte City, Llano Seco, Nord, Pennington, West of Biggs; habitat present in annual grasslands</td>
</tr>
<tr>
<td>Woolly-leaved milk-vetch</td>
<td><em>Astragalus whitneyi</em> var. <em>lenophyllus</em></td>
<td>–/–/4.3</td>
<td>Northern High Sierra Nevada with occurrences in Alpine, Butte, Nevada, Placer, Plumas, and Sierra Counties</td>
<td>Alpine boulder and rock field, rocky soils in subalpine coniferous forest; 2,135–3,050 meters</td>
<td>Jul-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in coniferous forest</td>
</tr>
<tr>
<td>Heartscale</td>
<td><em>Atriplex cordulata</em></td>
<td>–/–/1B.2</td>
<td>Western Central Valley and valleys of adjacent foothills</td>
<td>Saline or alkaline area in chenopod scrub, meadows and seeps, sandy soils in valley and foothill grassland; below 375 meters</td>
<td>Apr-Oct</td>
<td>Pennington; habitat present in annual grasslands</td>
</tr>
<tr>
<td>Lesser saltscale*</td>
<td><em>Atriplex minuscula</em></td>
<td>–/–/1B.1</td>
<td>Sacramento and San Joaquin Valley, Butte County and from Merced County to Kern County</td>
<td>Sandy alkaline soils in chenopod scrub, playas, valley and foothill grassland; 15-200 meters</td>
<td>May-Oct</td>
<td>Pennington; habitat present in annual grasslands</td>
</tr>
<tr>
<td>Subtle orache</td>
<td><em>Atriplex subtilis</em></td>
<td>–/–/1B.2</td>
<td>Central Valley, especially San Joaquin Valley with occurrences in Butte, Fresno, Kings, Kern, Madera, Merced, and Tulare Counties</td>
<td>Alkali scalds and alkali grasslands, often near vernal pools; 40-100 meters</td>
<td>Jun-Oct</td>
<td>Pennington; habitat present in annual grasslands</td>
</tr>
<tr>
<td>Mexican mosquito fern</td>
<td><em>Azolla mexicana</em></td>
<td>–/–/4.2</td>
<td>Sacramento Valley, northern Sierra Nevada in Butte, Kern, Lake, Modoc, Nevada, Plumas, Santa Clara, San Diego, and Tulare Counties; also Arizona, Nevada, Mexico, and elsewhere</td>
<td>Marshes and swamps, ponds, and other slow moving water; 30-100 meters</td>
<td>N/A (fertile in Aug)</td>
<td>Biggs, Llano Seco; habitat present in marsh wetlands and streams</td>
</tr>
<tr>
<td>Bigscale balsamroot</td>
<td><em>Balsamorhiza macrolepis</em> var. <em>macrolepis</em></td>
<td>–/–/1B.2</td>
<td>Scattered occurrences in the Coast Ranges and Sierra Nevada Foothills</td>
<td>Sometimes on serpentine soils in chaparral, cismontane woodland, valley and foothill grassland; 90-1,450 meters</td>
<td>Mar-Jun</td>
<td>Brush Creek; habitat present in annual grasslands and chaparral</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Geographic Distribution</td>
<td>Habitat Associations; Elevation</td>
<td>Flowering Period</td>
<td>Species Occurrences &amp; Habitat in Butte County</td>
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<tr>
<td>Resin birch</td>
<td><em>Betula pumila</em> var.</td>
<td>Cascade Range, Warner Mountains; also Oregon, Washington, and elsewhere</td>
<td>Wet areas in bogs and fens, meadows and seeps, marshes and swamps, lower montane coniferous forest, subalpine coniferous forest; 1,310-2,285 meters</td>
<td>Apr-Aug</td>
<td>CNPS records at borders of Butte, Plumas, and Tehema counties; no recorded occurrences in CNDDB; habitat potentially present in wet meadow and coniferous forest</td>
<td></td>
</tr>
<tr>
<td>Upswept moonwort</td>
<td><em>Botrychium ascendens</em></td>
<td>Southern high Cascade Range, and scattered occurrences elsewhere: Butte, El Dorado, Mono, Modoc, Plumas, Shasta, Tehama, and Tulare Counties; Idaho, Oregon, Nevada, Washington, and elsewhere</td>
<td>Wet areas in lower montane coniferous forest; 1,500-1,830 meters</td>
<td>N/A (fertile Jul-Aug)</td>
<td>Humboldt Peak, Jonesville; habitat present in coniferous forest, wet meadow, and along drainages</td>
<td></td>
</tr>
<tr>
<td>Scalloped moonwort</td>
<td><em>Botrychium crenulatum</em></td>
<td>Scattered occurrences in mountains of California</td>
<td>Bogs and fens, lower montane coniferous forest, meadows and seeps, freshwater marshes and swamp; 1,500-3,280 meters</td>
<td>N/A (fertile Jun-Jul)</td>
<td>Butte Meadows, Humboldt Peak; habitat present in coniferous forest, wet meadow, freshwater marsh, and along drainages</td>
<td></td>
</tr>
<tr>
<td>Mingan moonwort</td>
<td><em>Botrychium minganense</em></td>
<td>High Cascade Range, southern High Sierra Nevada with occurrences in Butte, Fresno, Modoc, Nevada, Placer, Plumas, San Bernardino, Shasta, Tehama, and Tulare Counties; Arizona, Idaho, Nevada, Oregon, Utah, Washington, and elsewhere</td>
<td>Wet areas in lower montane coniferous forest; 1,500-2,055 meters</td>
<td>N/A (fertile Jul-Sep)</td>
<td>Humboldt Peak, Jonesville; habitat present in coniferous forest along drainages</td>
<td></td>
</tr>
<tr>
<td>Western goblin</td>
<td><em>Botrychium montanum</em></td>
<td>Southern high Cascade Range; Oregon, Washington</td>
<td>Wet areas in lower montane coniferous forest; 1,500-2,130 meters</td>
<td>N/A (fertile Jul-Sep)</td>
<td>Humboldt Peak, Jonesville; habitat present in coniferous forest along drainages</td>
<td></td>
</tr>
<tr>
<td>Common Name Scientific Name</td>
<td>Listing Status(^a) Federal/State/CNPS</td>
<td>Geographic Distribution</td>
<td>Habitat Associations; Elevation</td>
<td>Flowering Period</td>
<td>Species Occurrences(^b) and Habitat in Butte County</td>
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<tr>
<td>Thread-leaved beakseed Bulbostylis capillaris</td>
<td>–/–/4.2</td>
<td>Central High Sierra Nevada with occurrences in Alpine, Butte, Fresno, Mariposa, Nevada, Plumas, Sierra, Tehama, and Tuolumne Counties; Arizona, New Mexico, Oregon, Texas</td>
<td>Lower and upper montane coniferous forest, meadows and seeps; 395-2,075 meters</td>
<td>Jun-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in wet meadows</td>
<td></td>
</tr>
<tr>
<td>Round-leaved filaree California macrophyllum (formerly Erodium)</td>
<td>–/–/2.1</td>
<td>Scattered occurrences in the Great Valley, southern North Coast Ranges, San Francisco Bay Area, South Coast Ranges, Channel Islands, Transverse Ranges, and Peninsular Ranges</td>
<td>Cismontane woodland, valley and foothill grassland on clay soils at 15-1,200 meters</td>
<td>Mar-May</td>
<td>Nelson, Richardson Springs NW; habitat present in annual grasslands and oak woodlands</td>
<td></td>
</tr>
<tr>
<td>Butte County calycadenia Calycadenia oppositifolia</td>
<td>–/–/4.2</td>
<td>Endemic to Butte County</td>
<td>Volcanic or serpentine soils in openings in chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland; 90-945 meters</td>
<td>Apr-Jul</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in annual grasslands, oak woodlands, chaparral, and coniferous forest</td>
<td></td>
</tr>
<tr>
<td>Butte County morning-glory Calystegia atriplicifolia ssp. buttensis</td>
<td>–/–/1B.2</td>
<td>Cascade Range and North Coast Range foothills: Butte, Contra Costa, Del Norte, Mendocino, Shasta, and Tehama Counties</td>
<td>Rocky sites in chaparral and lower montane coniferous forest; 600-1,510 meters</td>
<td>May-Jul</td>
<td>Butte Meadows, Cohasset, Kimshew Point, Paradise East, Paradise West, Stirling City; habitat present in coniferous forest</td>
<td></td>
</tr>
<tr>
<td>Moss: flagella-like atractylocarpus Campylodictiella sienocarpa (formerly Atractylocarpus flagellaceus)</td>
<td>–/–/2.2</td>
<td>Known in California from one occurrence near Helena in Trinity County and in Butte County; also known from elsewhere</td>
<td>Cismontane woodland, often on seeps on road cut cliffs; 100-500 meters</td>
<td>N/A</td>
<td>Richardson Springs; habitat present in oak and riparian woodlands</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4.4-I  **Special-Status Plant Species Known or With Potential to Occur in Butte County**  (continued)

<table>
<thead>
<tr>
<th>Common Name</th>
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<th>Species Occurrences and Habitat in Butte County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissected-leaved toothwort</td>
<td>Cardamine</td>
<td>–/–/3</td>
<td>Sierra Nevada foothills and interior North Coast Ranges: Butte, Glenn, Mendocino, Placer, Sonoma, and Tehama Counties</td>
<td>Typically rocky serpentine soils in chaparral and lower montane coniferous forest; 255-2,100 meters</td>
<td>Feb-May</td>
<td>Berry Creek, Brush Creek, Cascade, Cohasset, Forbestown, Oroville Dam, Paradise East, Paradise West, Pulga, Stirling City; habitat potentially present in chaparral and coniferous forest</td>
</tr>
<tr>
<td>Geyer’s sedge</td>
<td>Carex geyeri</td>
<td>–/–/4.2</td>
<td>Klamath Ranges in Butte, Humboldt, Plumas, Sierra, Siskiyou, and Trinity Counties; Nevada and elsewhere</td>
<td>Great Basin scrub, lower montane coniferous forest; 1,155-2,100 meters</td>
<td>May-Jun</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in coniferous forest</td>
</tr>
<tr>
<td>Shore sedge</td>
<td>Carex limosa</td>
<td>–/–/2.2</td>
<td>High Sierra Nevada: Butte, El Dorado, Fresno, Lassen, Nevada, Plumas, Siskiyou, and Tuolumne Counties; Nevada and elsewhere</td>
<td>Bogs and fens, lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest; 1,200-2,700 meters</td>
<td>Jun-Aug</td>
<td>Butte Meadows, Jonesville; habitat present in wet meadow, high-elevation pond, and coniferous forest</td>
</tr>
<tr>
<td>Fox sedge</td>
<td>Carex vulpioidea</td>
<td>–/–/2.2</td>
<td>Scattered locations in the southeast Klamath Ranges, northern High Cascade Range, and the northern Sacramento Valley; Arizona, Oregon</td>
<td>Freshwater marshes and swamps, riparian woodland; 30-1,200 meters</td>
<td>May-Jun</td>
<td>Foster Island, Llano Seco, Ord Ferry, Oroville, Palemo; habitat present in freshwater marsh and riparian</td>
</tr>
<tr>
<td>Pink creamsacs</td>
<td>Castilleja</td>
<td>–/–/1B.2</td>
<td>Inner North Coast Ranges with occurrences in Butte, Colusa, Glenn, Lake, Napa, Santa Clara, and Shasta Counties</td>
<td>Serpentine soils in chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland; 20-900 meters</td>
<td>Apr-Jun</td>
<td>Hamlin Canyon, Nord, Oroville, Pennington, Shippee; habitat present in chaparral and annual grasslands</td>
</tr>
<tr>
<td>Pappose tarplant</td>
<td>Centromedia</td>
<td>–/–/1B.2</td>
<td>North and Central Coast Ranges, the southern Sacramento Valley; occurrences in Butte, Colusa, Glenn, Lake, Napa, San Mateo, and Solano Counties</td>
<td>Coastal prairie, meadows and seeps, coastal salt marshes and swamps, alkaline soils in vernaly mesic valley and foothill grassland; 2-420 meters</td>
<td>May-Nov</td>
<td>Pennington; habitat present in annual grassland and vernal pools</td>
</tr>
<tr>
<td>Common Name</td>
<td>Listing Status^</td>
<td>Geographic Distribution</td>
<td>Habitat Associations; Elevation</td>
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<td>Species Occurrences^ and Habitat in Butte County</td>
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<tr>
<td>Parry's red tarplant</td>
<td>–/–/4.2</td>
<td>Butte, Colusa, Glenn, Lake, Merced, Sacramento, San Joaquin, Solano, Sutter, and Yolo Counties</td>
<td>Vernally mesic alkaline soils and seeps, sometimes roadsides in valley and foothill grassland and vernal pools; 1-100 meters</td>
<td>May-Oct</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in annual grassland and vernal pools</td>
<td></td>
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<tr>
<td>Hoovers's spurge*</td>
<td>T/~1B.2</td>
<td>Central Valley from Butte County to Tulare County</td>
<td>Below the high-water mark of large northern hardpan and volcanic vernal pools; 25-250 meters</td>
<td>Jul-Aug</td>
<td>Hamlin Canyon, Nord, Richardson Springs NW, Vina; habitat present in vernal pools</td>
<td></td>
</tr>
<tr>
<td>Brandgee's clarkia</td>
<td>–/–1B.2</td>
<td>Northern Sierra Nevada Foothills from Butte to El Dorado Counties</td>
<td>Chaparral, cismontane woodland, often on roadcuts; 225-915 meters</td>
<td>May-Jul</td>
<td>Bangor, Forbestown, Oroville, Oroville Dam; habitat present in chaparral and oak woodland</td>
<td></td>
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<tr>
<td>White-stemmed clarkia</td>
<td>–/–1B.2</td>
<td>Southern Cascade Range foothills, Butte, Lake, and Tehama Counties</td>
<td>Chaparral, cismontane woodland, sometimes on serpentine soils at 245-1,085 meters</td>
<td>May-Jul</td>
<td>Berry Creek, Cherokee, Cohasset, Forbestown, Paradise East, Paradise West, Pulga, Richardson Springs; habitat present in chaparral and oak woodland</td>
<td></td>
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<tr>
<td>Golden-anthered</td>
<td>–/–/4.2</td>
<td>Butte, Plumas, Sierra, and Yuba Counties</td>
<td>Oak woodland, openings in lower montane coniferous forest, often on roadcuts; 275-1,750 meters</td>
<td>Jun-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in oak woodlands and coniferous forest</td>
<td></td>
</tr>
<tr>
<td>Mildred's clarkia</td>
<td>–/–1B.3</td>
<td>Southern Cascade Range, northern Sierra Nevada, and the Feather River drainage with occurrences in Butte and Plumas Counties</td>
<td>Shaded areas in cismontane woodland and lower montane coniferous forest, on sandy, usually granitic soils at 245-1,710 meters</td>
<td>May-Aug</td>
<td>Berry Creek, Brush Creek, Cohasset, Kimshew Point, Paradise East, Pulga, Soapstone Hill, Stirling City; habitat present in oak woodlands and coniferous forest</td>
<td></td>
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<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Geographic Distribution</td>
<td>Habitat Associations; Elevation</td>
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<td>Species Occurrences and Habitat in Butte County</td>
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<tr>
<td>Mosquin's clarkia</td>
<td>Clarkia mosquinii (formerly subspecies mosquinii)</td>
<td>Northern Sierra Nevada Foothills in vicinity of Feather River Canyon near Pulga in northeast Butte County and Plumas County</td>
<td>Rocky, roadside areas in cismontane woodland and lower montane coniferous forest; 185-1,219 meters</td>
<td>May-Jul</td>
<td>Berry Creek, Brush Creek, Cascade, Cherokee, Clipper Mills, Forbestown, Oroville Dam, Pulga, Soapstone Hill, Strawberry Valley; habitat present in oak woodlands and coniferous forest</td>
<td></td>
</tr>
<tr>
<td>Marsh claytonia</td>
<td>Claytonia palustris</td>
<td>Klamath Ranges, High Cascade Range, northern and central High Sierra Nevada: Butte, Fresno, Plumas, Siskiyou, Tehama, and Tulare Counties</td>
<td>Mesic meadows, marshes and swamps; 1,000-2,500 meters</td>
<td>May-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in wet meadows and freshwater marsh</td>
<td></td>
</tr>
<tr>
<td>Streambank spring beauty</td>
<td>Claytonia parviflora ssp. grandiflora</td>
<td>Amador, Butte, Calaveras, El Dorado, Fresno, Kern, Placer, Tulare, Tuolumne Counties</td>
<td>Rocky sites in cismontane woodland; 250-1,200 meters</td>
<td>Feb-Apr (May)</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in oak and riparian woodlands</td>
<td></td>
</tr>
<tr>
<td>California lady's-slipper</td>
<td>Cypripedium californicum</td>
<td>Klamath Ranges, northern outer North Coast Ranges, western Cascade Range, northern Sierra Nevada, northwest San Francisco Bay Area in Butte, Del Norte, Humboldt, Mendocino, Marin, Plumas, Shasta, Sierra, Siskiyou, Sonoma, Trinity, Yuba Counties; Oregon</td>
<td>Seeps and streambanks, bogs and fens, lower montane coniferous forest, usually serpentine; 30-2,750 meters</td>
<td>Apr-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in wet meadows and coniferous forest</td>
<td></td>
</tr>
<tr>
<td>Clustered lady's-slipper</td>
<td>Cypripedium fasciculatum</td>
<td>Northwestern California, Cascade Range, northern Sierra Nevada Mountains, southwestern San Francisco Bay area; Idaho, Oregon, Utah, Washington, Wyoming</td>
<td>Usually serpentine seeps and streambanks in lower montane coniferous forest, North Coast coniferous forest; 100-2,435 meters</td>
<td>Mar-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in wet meadows and coniferous forest</td>
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</tbody>
</table>
## Table 4.4-1 | Special-Status Plant Species Known or With Potential to Occur in Butte County (continued)

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Listing Status (a) Federal/State/CNPS</th>
<th>Geographic Distribution</th>
<th>Habitat Associations; Elevation</th>
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<th>Species Occurrences (b) and Habitat in Butte County</th>
</tr>
</thead>
<tbody>
<tr>
<td>California pitcherplant <em>Darlingtonia californica</em></td>
<td>–/-/4.2</td>
<td>Klamath Ranges, Cascade Range, northern high Sierra Nevada</td>
<td>Generally on serpentine seeps in bogs, fens, wet meadows; 0-2,585 meters</td>
<td>Apr-Jul</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in wet meadows</td>
</tr>
<tr>
<td>Recurved larkspur <em>Delphinium recurvatum</em></td>
<td>–/-/1B.2</td>
<td>Central Valley from Colusa to Kern Counties</td>
<td>Alkaline soils in valley and foothill grassland, saltbush scrub, cismontane woodland; below 750 m</td>
<td>Mar-May</td>
<td>Nelson; habitat present in annual grasslands and oak woodlands</td>
</tr>
<tr>
<td>Moss: Norris’ beard moss <em>Didymodon norrisii</em></td>
<td>–/-/2.2</td>
<td>Scattered occurrences in Contra Costa, Colusa, Humboldt, Lake, Madera, Monterey, Nevada, Plumas, San Benito, Santa Cruz, Sierra, Tehama, Tulare, and Tuolumne Counties; Oregon</td>
<td>Intermittently wet areas in rock outcrops in cismontane woodland, lower montane coniferous forest; 600-1,973 meters</td>
<td>N/A</td>
<td>Paradise West, Richardson Springs; habitat present in oak and riparian woodlands and coniferous forest</td>
</tr>
<tr>
<td>Clifton’s eremogone <em>Eremogone cliftonii</em></td>
<td>–/-/1B.3</td>
<td>Butte and Plumas Counties</td>
<td>Chaparral, lower montane coniferous forest, upper montane coniferous forest/openings, usually granitic; 455 – 1,770 meters</td>
<td>Apr-Sep</td>
<td>Brush Creek, Cascade, Jonesville, Kimshew Point, Pulga, Soapstone Hill; habitat present in chaparral and coniferous forest</td>
</tr>
<tr>
<td>Small spikerush <em>Eleocharis parvula</em></td>
<td>–/-/4.3</td>
<td>Butte, Contra Costa, Glenn, Humboldt, Napa, Orange, Siskiyou, San Luis Obispo, Sonoma, and Ventura Counties; Oregon, Washington</td>
<td>Marshes and swamps; below 3,020 meters</td>
<td>Apr-Sep</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in freshwater marshes</td>
</tr>
<tr>
<td>Hot rock daisy <em>Erigeron inornatus var. calidipetris</em></td>
<td>–/-/4.3</td>
<td>Cascade Range, Modoc Plateau: Butte, Lassen, Modoc, Plumas, Shasta, and Siskiyou Counties</td>
<td>Sandy, volcanic soils in lower montane coniferous forest; 1,100-1,935 meters</td>
<td>Jun-Sep</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in coniferous forest</td>
</tr>
</tbody>
</table>
### Special-Status Plant Species Known or With Potential to Occur in Butte County (continued)

<table>
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<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Listing Status&lt;sup&gt;a&lt;/sup&gt; Federal/State/CNPS</th>
<th>Geographic Distribution</th>
<th>Habitat Associations; Elevation</th>
<th>Flowering Period</th>
<th>Species Occurrences&lt;sup&gt;b&lt;/sup&gt; and Habitat in Butte County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Sierra daisy</td>
<td>Erigeron petrophilus var. sierrensis</td>
<td>–/–/4.3</td>
<td>Northern Sierra Nevada Foothills: Butte, El Dorado, Nevada, Plumas, Sierra, and Yuba Counties</td>
<td>Cismontane woodland, lower and upper montane coniferous forest, sometimes serpentine; 300-2,073 meters</td>
<td>Jun-Oct</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in oak and riparian woodlands and coniferous forest</td>
</tr>
<tr>
<td>Slender cottongrass</td>
<td>Eriophorum gracile</td>
<td>–/–/4.3</td>
<td>Butte, El Dorado, Lassen, Madera, Marin, Nevada, Plumas, San Francisco, Shasta, Sierra, Siskiyou, Sonoma, Tuolumne Counties; also Idaho, Oregon, Washington, and elsewhere</td>
<td>Acidic soils of bogs and fens, meadows and seeps, upper montane coniferous forest; 1,280-2,900 meters</td>
<td>May-Sep</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in wet meadows and coniferous forest</td>
</tr>
<tr>
<td>Moss: minute pocket-moss</td>
<td>Fissidens pauperculus</td>
<td>–/-/1B.2</td>
<td>Butte, Del Norte, Humboldt, Mendocino, Marin, and Santa Cruz Counties</td>
<td>Damp, coastal soil in North Coast coniferous forest; 10-100 meters</td>
<td>N/A</td>
<td>Brush Creek, Forbestown; habitat present in coniferous forest</td>
</tr>
<tr>
<td>Butte County fritillary</td>
<td>Fritillaria eastwoodiae</td>
<td>–/-/3.2</td>
<td>Sierra Nevada Foothills, from Shasta to El Dorado Counties</td>
<td>Chaparral, cismontane woodland, openings in lower montane coniferous forest, sometimes on serpentine; 50-1,500 meters</td>
<td>Mar-May</td>
<td>Berry Creek, Brush Creek, Cascade, Cherokee, Chico, Clipper Mills, Cohasset, Forbestown, Hamilton Canyon, Kimshew Point, Oroville Dam, Paradise East, Paradise West, Pulga, Stirling City; habitat present in chaparral, oak woodlands, and coniferous forest</td>
</tr>
<tr>
<td>Adobe-lily</td>
<td>Fritillaria pluriflora</td>
<td>–/-/1B.2</td>
<td>Northern Sierra Nevada Foothills, Inner North Coast Ranges, edges of Sacramento Valley</td>
<td>Chaparral, cismontane woodland, valley and foothill grassland, often on adobe soils; 60-705 meters</td>
<td>Feb-Apr</td>
<td>Chico, Nord, Richardson Springs, Richardson Springs NW, Shippee; habitat present in chaparral, oak woodlands, and annual grasslands</td>
</tr>
</tbody>
</table>
## Table 4.4-1  Special-Status Plant Species Known or With Potential to Occur in Butte County (continued)

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Hogwallow starfish</td>
<td>Hesperocystis caulescens</td>
<td>–/–/4.2</td>
<td>Alameda, Amador, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Merced, Napa, San Diego, San Joaquin, San Luis Obispo, Solano, Stanislaus, Sutter, Tehama, and Yolo Counties</td>
<td>Mesic clay in valley and foothill grassland; below 505 meters</td>
<td>Mar-Jun</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in annual grassland and vernal pools</td>
</tr>
<tr>
<td>Rose-mallow (or California hibiscus)</td>
<td>Hibiscus lasiocarpus</td>
<td>–/–/2.2</td>
<td>Scattered locations in central California in the Central and southern Sacramento Valley, deltaic Central Valley, from Butte to San Joaquin County</td>
<td>Freshwater marshes along rivers and sloughs; below 120 meters</td>
<td>Jun-Sep</td>
<td>Butte City, Hamlin Canyon, Llano Seco, Nelson, Ord Ferry, Paradise West, Pennington, Richardson Springs, Sanborn Slough, Shippee, West of Biggs; habitat present within freshwater marsh along drainages and flooded agricultural fields</td>
</tr>
<tr>
<td>California satintail</td>
<td>Imperata brevifolia</td>
<td>–/–/2.1</td>
<td>Butte, Fresno, Imperial, Inyo, Kern, Lake, Los Angeles, Orange, Riverside, San Bernardino, Tehama, Tulare, Ventura Counties; also Arizona, Nevada, and elsewhere</td>
<td>Mesic, often alkaline soils in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkaline), riparian scrub; 0-500 meters</td>
<td>Sep-May</td>
<td>Campbell Mound, Paradise West, Richardson Springs; habitat present in chaparral, wet meadows, and riparian woodland</td>
</tr>
<tr>
<td>Ahart’s dwarf rush*</td>
<td>Juncus leiospermus var. ahartii</td>
<td>–/–/1B.2</td>
<td>Eastern Sacramento Valley, northeastern San Joaquin Valley with occurrences in Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba Counties</td>
<td>Wet areas in valley and foothill grassland, vernal pool margins; 30-100 meters</td>
<td>Mar-May</td>
<td>Biggs, Honcut, Palermo; habitat present in annual grasslands and vernal pools</td>
</tr>
<tr>
<td>Red Bluff dwarf rush</td>
<td>Juncus leiospermus var. leiospermus</td>
<td>–/–/1B.1</td>
<td>Northern Sacramento Valley and Cascade Range foothills with occurrences in Butte, Placer, Shasta, and Tehama Counties</td>
<td>Seasonally wet areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; 35-1,020 meters</td>
<td>Mar-May</td>
<td>Campbell Mound, Cherokee, Oroville, Richardson Springs, Shippee; habitat present in chaparral, oak woodlands, annual grasslands, and vernal pools</td>
</tr>
<tr>
<td>Common Name</td>
<td>Listing Status</td>
<td>Geographic Distribution</td>
<td>Habitat Associations; Elevation</td>
<td>Flowering Period</td>
<td>Species Occurrences and Habitat in Butte County</td>
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<tr>
<td>Ferris's goldfields <em>Lasthenia ferrisiae</em></td>
<td>-/-/4.2</td>
<td>Occurs in Alameda, Butte, Contra Costa, Colusa, Fresno, Kings, Kern, Merced, Monterey, San Benito, San Joaquin, San Luis Obispo, Solano, Stanislaus, Tulare, Ventura, and Yolo Counties</td>
<td>Vernal pools on alkaline, clay-based soils; 20-700 meters</td>
<td>Feb-May</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDDB; habitat potentially present in annual grassland and vernal pools</td>
<td></td>
</tr>
<tr>
<td>Bristly leptosiphon (Linanthus) <em>Leptosiphon acicularis</em> (formerly <em>Linanthus</em>)</td>
<td>-/-/4.2</td>
<td>North coast, North Coast Ranges, San Francisco Bay area in Alameda, Butte, Contra Costa, Fresno, Humboldt, Lake, Mendocino, Marin, Napa, Santa Clara, San Mateo, and Sonoma Counties</td>
<td>Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland between 55-1,500 meters</td>
<td>Apr-Jul</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDDB; habitat potentially present in chaparral, oak and riparian woodlands, and annual grassland</td>
<td></td>
</tr>
<tr>
<td>Cantelow's lewisia <em>Lewisia cantelovii</em></td>
<td>-/-/1B.2</td>
<td>Canyons of the Sacramento River, North and Middle Forks of the Feather River, and Yuba River</td>
<td>In moist areas on granitic or sometimes serpentine seeps in chaparral, cismontane woodland, broadleaved upland forest, lower montane coniferous forest; 330-1,370 meters</td>
<td>May-Oct</td>
<td>Brush Creek, Pulga, Soapstone Hill; habitat present in chaparral, oak woodlands, and coniferous forest</td>
<td></td>
</tr>
<tr>
<td>Hutchison’s lewisia <em>Lewisia kelloggii ssp. hutchisonii</em></td>
<td>-/-/3.3</td>
<td>Northern Sierra Nevada</td>
<td>Openings in upper montane coniferous forest; 1,463-2,135 meters</td>
<td>Jun-Aug</td>
<td>Jonesville; habitat potentially present in coniferous forest</td>
<td></td>
</tr>
<tr>
<td>Humboldt lily <em>Lilium humboldtii ssp. humboldtii</em></td>
<td>-/-/4.2</td>
<td>Southern Cascade Range, high Sierra Nevada; Amador, Butte, Calaveras, El Dorado, Fresno, Madera, Mariposa, Nevada, Placer, Tehama, Tuolumne, and Yuba Counties</td>
<td>Openings in chaparral, cismontane woodland, lower montane coniferous forest; 90-1,195 meters</td>
<td>May-Jul</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDDB; habitat potentially present in chaparral, oak woodland, and coniferous forest</td>
<td></td>
</tr>
<tr>
<td>Butte County meadowfoam <em>Limnanthes floccosa ssp. californica</em></td>
<td>E/E/1B.1</td>
<td>Endemic to Butte County</td>
<td>Wet areas in valley and foothill grassland, vernal pools and swales; 50-930 meters</td>
<td>Mar-May</td>
<td>Chico, Nord, Oroville, Richardson Springs, Shippee; habitat present in annual grasslands and vernal pools</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4.4-1 Special-Status Plant Species Known or With Potential to Occur in Butte County (continued)

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Listing Status(^a) Federal/State/CNPS</th>
<th>Geographic Distribution</th>
<th>Habitat Associations; Elevation</th>
<th>Flowering Period</th>
<th>Species Occurrences(^b) and Habitat in Butte County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woolly meadowfoam</td>
<td><em>Limnanthes floccosa</em> ssp. <em>floccosa</em></td>
<td>–/–/4.2</td>
<td>Northern Sacramento Valley and Cascade Range foothills, from Siskiyou County to Butte County; Oregon</td>
<td>Seasonally wet areas in chaparral, oak woodland openings, Valley and foothill grassland, vernal pools; 60-1,095 meters</td>
<td>Mar-Jun</td>
<td>Nord, Richardson Springs, Richardson Springs NW; habitat present in vernal pools</td>
</tr>
<tr>
<td>Moss; three-ranked hump-moss</td>
<td><em>Meesia triquetra</em></td>
<td>–/–/2.2</td>
<td>Widespread, with occurrences from Humboldt and Lassen Counties south to Riverside Counties; Nevada, Oregon, and elsewhere</td>
<td>On soil in bogs and fens, meadows and seeps, moist sites in subalpine and upper montane coniferous forest; 1,300-2,953 meters</td>
<td>N/A</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in wet meadows and coniferous forest</td>
</tr>
<tr>
<td>Sylvan microseris</td>
<td><em>Microseris sylvestrica</em></td>
<td>–/–/4.2</td>
<td>Throughout central and southern California, with occurrences from Tehama County south to Kern County</td>
<td>Chaparral, Great Basin scrub, pinyon and juniper woodland, oak woodland, and valley and foothill grassland on serpentine; 45-1,500 meters</td>
<td>Mar-Jun</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in chaparral, oak woodland, and annual grassland</td>
</tr>
<tr>
<td>Shield-bracted monkeyflower</td>
<td><em>Mimulus glaucescens</em></td>
<td>–/–/4.3</td>
<td>Southern Cascade Range foothills, northern Sierra Nevada Foothills: Butte, Colusa, Lake, Nevada, Shasta, and Tehama Counties</td>
<td>Serpentine seeps in valley and foothill grassland, chaparral, cismontane woodland, lower montane coniferous forest; 60-1,240 meters</td>
<td>Feb-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in annual grasslands, chaparral, oak woodland, and coniferous forest</td>
</tr>
<tr>
<td>Small-flowered monkeyflower</td>
<td><em>Mimulus inconspicuus</em></td>
<td>–/–/4.3</td>
<td>Amador, Calaveras, Mariposa, Fresno, and Tuolumne Counties</td>
<td>Mesic areas in chaparral, cismontane woodland, lower montane coniferous forest; 455-760 meters</td>
<td>May-Jun</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in chaparral, oak and riparian woodland, and coniferous forest</td>
</tr>
<tr>
<td>Common Name</td>
<td>Listing Status Federal/ State/CNPS</td>
<td>Geographic Distribution</td>
<td>Habitat Associations; Elevation</td>
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<tr>
<td>Cut-leaved monkeyflower</td>
<td>–/–/4.3</td>
<td>Amador, Butte, Fresno, Madera, Mariposa, Plumas, Tulare, and Tuolumne Counties</td>
<td>Chaparral, lower and upper montane coniferous forest, mesic areas of granitic substrate; 490-2,650 meters</td>
<td>Apr-Jul</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in chaparral and coniferous forest</td>
<td></td>
</tr>
<tr>
<td>Veiny monardella</td>
<td>–/–/1B.1</td>
<td>Occurrences in the northern and central Sierra Nevada Foothills; also historically known from the Sacramento Valley</td>
<td>Cismontane woodland, valley and foothill grassland on heavy clay soils; 60-410 meters</td>
<td>May-Jul</td>
<td>Cherokee, Hamlin Canyon; habitat present in annual grassland and oak woodlands</td>
<td></td>
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<tr>
<td>Cotula navarretia</td>
<td>–/–/4.2</td>
<td>Occurs in Alameda, Butte, Contra Costa, Colusa, Glenn, Lake, Mendocino, Marin, Napa, San Benito, Santa Clara, Siskiyou, Solano, Sonoma, Sutter, and Yolo Counties</td>
<td>Adobe soils in chaparral, woodland, valley and foothill grassland; below 1,830 meters</td>
<td>May-Jun</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in annual grasslands, chaparral, and oak woodland</td>
<td></td>
</tr>
<tr>
<td>Tehama navarretia</td>
<td>–/–/4.3</td>
<td>Interior North Coast Ranges, Cascade Range foothills, western Sacramento Valley, east San Francisco Bay Area, interior South Coast Ranges, Modoc Plateau in Butte, Colusa, Lake, Napa, Shasta, Tehama, Trinity, and Yuba Counties; Oregon</td>
<td>Mesic areas in valley and foothill grasslands, vernal pools; 30-1,010 meters</td>
<td>Apr-Jun</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in annual grassland and vernal pools</td>
<td></td>
</tr>
<tr>
<td>Adobe navarretia</td>
<td>–/–/4.2</td>
<td>Alameda, Butte, Contra Costa, Colusa, Fresno, Kern, Merced, Monterey, Placer, Sutter, Tulare Counties</td>
<td>Clay soils in vernaly mesic valley and foothill grassland, vernal pools, sometimes on serpentinite substrates; 100-1,000 meters</td>
<td>Apr-Jun</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in annual grassland and vernal pools</td>
<td></td>
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</tbody>
</table>
**Table 4.4-1  SPECIAL-STATUS PLANT SPECIES KNOWN OR WITH POTENTIAL TO OCCUR IN BUTTE COUNTY (CONTINUED)**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Listing Status&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Geographic Distribution</th>
<th>Habitat Associations; Elevation</th>
<th>Flowering Period</th>
<th>Species Occurrences&lt;sup&gt;b&lt;/sup&gt; and Habitat in Butte County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awl-leaved navarretia</td>
<td><em>Navarretia subuligera</em></td>
<td>–/-/4.3</td>
<td>Interior North Coast Ranges, northern Sierra Nevada Foothills, Sacramento Valley; also Oregon</td>
<td>Rocky, mesic areas in chaparral, cismontane woodland, lower montane coniferous forest; 150-1,100 meters</td>
<td>Apr-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDDB; habitat potentially present in chaparral, oak woodland, and coniferous forest</td>
</tr>
<tr>
<td>California adder's-tongue</td>
<td><em>Ophioglossum californicum</em></td>
<td>–/-/4.2</td>
<td>Northern and central Sierra Nevada foothills, central and southern coast in Amador, Butte, Merced, Monterey, Mariposa, Orange, San Bernardino, San Diego, Stanislaus, and Tuolumne Counties; Baja California</td>
<td>Vernal pools margins, moist areas in Valley and foothill grassland and chaparral; 60-525 meters</td>
<td>Dec-Jun</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDDB; habitat potentially present in annual grassland and vernal pools</td>
</tr>
<tr>
<td>Hairy Orcutt grass*</td>
<td><em>Orcuttia pilosa</em></td>
<td>E/E/1B.1</td>
<td>Scattered locations along east edge of the Central Valley and adjacent foothills from Tehama to Merced Counties</td>
<td>Vernal pools; 55-200 meters</td>
<td>May-Sep</td>
<td>Hamlin Canyon; habitat present in vernal pools</td>
</tr>
<tr>
<td>Slender Orcutt grass</td>
<td><em>Orcuttia tenuis</em></td>
<td>T/E/1B.1</td>
<td>Sierra Nevada and Cascade Range foothills from Siskiyou to Sacramento Counties</td>
<td>Vernal pools; 35-1,760 meters</td>
<td>May-Oct</td>
<td>Palermo, Richardson Springs NW, Vina; habitat present in vernal pools</td>
</tr>
<tr>
<td>Cut-leaved ragwort</td>
<td><em>Packera eurycephalus</em> var. lewisirosei (formerly <em>Senecio</em>)</td>
<td>–/-/1B.2</td>
<td>Northern High Sierra Nevada, including the Feather River Drainage, eastern Butte and Plumas Counties</td>
<td>Serpentine soils in chaparral, cismontane woodland, and lower montane coniferous forest; 285-1,890 meters</td>
<td>Mar-Sep</td>
<td>Berry Creek, Cherokee, Jonesville, Paradise East, Pulga, Stirling City; habitat present in chaparral, oak and riparian woodland, and coniferous forest</td>
</tr>
<tr>
<td>Layne’s ragwort (or Layne’s butterweed)</td>
<td><em>Packera layneae</em> (formerly <em>Senecio</em>)</td>
<td>T/R/1B.2</td>
<td>Northern Sierra Nevada Foothills, Butte, El Dorado, Tuolumne, and Yuba Counties</td>
<td>Rocky serpentine or gabbro soils in chaparral and foothill woodland; 200-1,000 meters</td>
<td>Apr-Aug</td>
<td>Clipper Mills; habitat present in chaparral and oak woodland</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Listing Status</td>
<td>Geographic Distribution</td>
<td>Habitat Associations; Elevation</td>
<td>Flowering Period</td>
<td>Species Occurrences and Habitat in Butte County</td>
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<tr>
<td>Ahart’s paronychia</td>
<td><em>Paronychia abartii</em></td>
<td>-/-/1B.1</td>
<td>Northern Central Valley in Butte, Shasta, and Tehama Counties</td>
<td>Cismontane woodland, valley and foothill grassland, vernal pools; 30-510 meters</td>
<td>Mar-Jun</td>
<td>Honcut, Oroville, Richardson Springs, Richardson Springs NW, Shipee; habitat present in annual grasslands, oak woodlands, and vernal pools</td>
</tr>
<tr>
<td>Shasta beardtongue</td>
<td><em>Penstemon heterodoxus var. shastensis</em></td>
<td>-/-/4.3</td>
<td>Cascade Range: Siskiyou County to Plumas County, and Butte County</td>
<td>Chaparral, lower and upper montane coniferous forest, meadows and seeps; 1,100-2,400 meters</td>
<td>Jun-Sep</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in chaparral and coniferous forest</td>
</tr>
<tr>
<td>Closed-throated beardtongue</td>
<td><em>Penstemon personatus</em></td>
<td>-/-/1B.2</td>
<td>Northern Sierra Nevada in Butte, Nevada, Plumas, and Sierra Counties</td>
<td>Chaparral, lower and upper montane coniferous forest on metavolcanic; 1,065-2,120 meters</td>
<td>Jun-Sep</td>
<td>Kimshew Point, Paradise East, Pulga, Stirling City; habitat present in chaparral and coniferous forest</td>
</tr>
<tr>
<td>Bacigalupi’s yampah</td>
<td><em>Perideridia bacigalupii</em></td>
<td>-/-/4.2</td>
<td>Amador, Butte, Calaveras, Kern, Madera, Mariposa, Nevada, and Tuolumne Counties</td>
<td>On serpentine in chaparral, lower montane coniferous forest; 450-1,000 meters</td>
<td>Jun-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in chaparral and coniferous forest</td>
</tr>
<tr>
<td>Coleman’s rein orchid</td>
<td><em>Piperia colemanii</em></td>
<td>-/-/4.3</td>
<td>Scattered distribution along eastern Central Valley and foothills from Siskiyou County to Tulare County</td>
<td>Chaparral and lower montane coniferous forest, often on sandy soils; 1,200-2,300 meters</td>
<td>Jun-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in chaparral and coniferous forest</td>
</tr>
<tr>
<td>Michael’s rein orchid (or purple-flowered piperia)</td>
<td><em>Piperia michaelii</em></td>
<td>-/-/4.2</td>
<td>Widespread in the Sierra Nevada foothills, coastal mountains, and San Francisco Bay region</td>
<td>Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest; 3-915 meters</td>
<td>Apr-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in chaparral, oak and riparian woodland, and coniferous forest</td>
</tr>
<tr>
<td>Common Name</td>
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<tr>
<td>Bidwell's knotweed</td>
<td><em>Polygonum bidwelliae</em></td>
<td>–/–/4.3</td>
<td>Cascade Range foothills, northern Sierra Nevada Foothills in Butte, Shasta, and Tehama Counties</td>
<td>Volcanic soils in valley and foothill grassland, chaparral, cismontane woodland; 60-1,200 meters</td>
<td>Apr-Jul</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in annual grassland, chaparral, and oak woodland</td>
</tr>
<tr>
<td>Kruckeberg's sword fern</td>
<td><em>Polystichum kruckebergii</em></td>
<td>–/–/4.3</td>
<td>Alpine, Butte, Placer, Plumas, San Bernardino, Shasta, Sierra, Siskiyou, and Tuolumne Counties; also Idaho, Nevada, Oregon, Utah, Washington</td>
<td>Rocky areas in subalpine and upper montane coniferous forest; 2,100-3,200 meters</td>
<td>Jun-Aug</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDB; habitat potentially present in coniferous forest</td>
</tr>
<tr>
<td>Slender-leaved pondweed</td>
<td><em>Potamogeton filiformis</em></td>
<td>–/–/2.2</td>
<td>Scattered locations in California: Contra Costa, El Dorado, Lassen, Merced, Mono, Modoc, Mariposa, Placer, Santa Clara, and Sierra Counties; Arizona, Nevada, Oregon, Washington</td>
<td>Freshwater marsh, shallow emergent wetlands and freshwater lakes, drainage channels; 300-2,150 meters</td>
<td>May-Jul</td>
<td>Chico; habitat present in freshwater marsh and stream channels</td>
</tr>
<tr>
<td>California beaked-rush</td>
<td><em>Rhynchospora californica</em></td>
<td>–/–/1B.1</td>
<td>Scattered occurrences in northwestern California, northern and central Sierra Nevada Foothills, and northern San Francisco Bay</td>
<td>Bogs and fens, meadows and seeps, lower montane coniferous forest, freshwater marshes and swamps; 45-1,010 meters</td>
<td>May-Jul</td>
<td>Paradise West, Richardson Springs; habitat present in wet meadow, freshwater marsh, and coniferous forest</td>
</tr>
<tr>
<td>Brownish beaked-rush</td>
<td><em>Rhynchospora capitellata</em></td>
<td>–/–/2.2</td>
<td>Scattered occurrences in Northwestern California and northern Sierra Nevada Foothills</td>
<td>Wet areas in lower and upper montane coniferous forest, meadows and seeps, freshwater marshes and swamps; 455-2,000 meters</td>
<td>Jul-Aug</td>
<td>Brush Creek, Cascade, Clipper Mills, Kimshew Point, Paradise West, Pulga; habitat present in freshwater marsh and wet meadow</td>
</tr>
<tr>
<td>Hall’s rupertia</td>
<td><em>Rupertia hallii</em></td>
<td>–/–/1B.2</td>
<td>Sierra Nevada Foothills in Butte and Tehama Counties</td>
<td>Cismontane woodland, lower montane coniferous forest, on disturbed soils of roadsides and logged forests; 545-2,250 meters</td>
<td>Jun-Aug</td>
<td>Butte Meadows; habitat present in oak woodland and coniferous forest</td>
</tr>
<tr>
<td>Common Name</td>
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</tr>
<tr>
<td>Sanford’s arrowhead</td>
<td><em>Sagittaria sanfordii</em></td>
<td>-/-/1B.2</td>
<td>Scattered locations in Central Valley and Coast Ranges</td>
<td>Freshwater marshes, sloughs, canals, and other slow-moving water habitats; below 610 meters</td>
<td>May-Oct</td>
<td>Berry Creek, Biggs, Gridley, Richardson Springs NW; habitat present in drainages and freshwater marsh</td>
</tr>
<tr>
<td>Tracy’s sanicle</td>
<td><em>Sanicula tracyi</em></td>
<td>-/-/4.2</td>
<td>Butte, Del Norte, Humboldt, Tehama, and Trinity Counties</td>
<td>Openings in cismontane woodland, lower and upper montane coniferous forest; 100-1,585 meters</td>
<td>Apr-Jul</td>
<td>Brush Creek, Clipper Mills; habitat present in oak and riparian woodlands and coniferous forest</td>
</tr>
<tr>
<td>Water bulrush</td>
<td><em>Schoenoplectus subterminalis</em></td>
<td>-/-/2.3</td>
<td>Klamath Ranges, northern high Sierra Nevada</td>
<td>Bogs and fens, montane lake margins of marshes and swamps; 750-2,250 meters</td>
<td>Jul-Aug</td>
<td>Jonesville; habitat present in coniferous forest and along high-elevation open water</td>
</tr>
<tr>
<td>Feather River stonecrop</td>
<td><em>Sedum albomarginatum</em></td>
<td>-/-/1B.2</td>
<td>Endemic to the northern Sierra Nevada Foothills of Plumas and Butte Counties</td>
<td>On serpentinite in chaparral, lower montane coniferous forest; 260-1,950 meters</td>
<td>May-Jun</td>
<td>Pulga; habitat present in chaparral and coniferous forest</td>
</tr>
<tr>
<td>Butte County checkerbloom*</td>
<td><em>Sidalcea robusta</em></td>
<td>-/-/1B.2</td>
<td>Endemic to Butte County</td>
<td>Chaparral, cismontane woodland; 90-1,600 meters</td>
<td>Apr-Jun</td>
<td>Cherokee, Chico, Cohasset, Hamilton Canyon, Paradise West, Richardson Springs; habitat present in chaparral and oak woodland</td>
</tr>
<tr>
<td>Long-stipided campion</td>
<td><em>Silene occidentalis</em></td>
<td>-/-/1B.2</td>
<td>Southern high Cascade Range in Tehama, Butte, Plumas and Shasta Counties</td>
<td>Chaparral, upper and lower montane coniferous forest; 1,000-2,000 meters</td>
<td>Jun-Aug</td>
<td>Butte Meadows, Humboldt Peak, Jonesville; habitat present in chaparral and coniferous forest</td>
</tr>
<tr>
<td>Long-leaved starwort</td>
<td><em>Stellaria longifolia</em></td>
<td>-/-/2.2</td>
<td>Butte, Calaveras, and Shasta Counties; Arizona, New Mexico, Oregon, Washington and elsewhere</td>
<td>Riparian woodland and wet areas in meadows and seeps; 900-1,830 meters</td>
<td>May-Jul</td>
<td>Butte Meadows, Jonesville; habitat present in wet meadows and along drainages in riparian</td>
</tr>
</tbody>
</table>
### Table 4.4-1 Special-Status Plant Species Known or With Potential to Occur in Butte County (Continued)

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Listing Status</th>
<th>Geographic Distribution</th>
<th>Habitat Associations; Elevation</th>
<th>Flowering Period</th>
<th>Species Occurrences and Habitat in Butte County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtuse starwort</td>
<td><em>Stellaria obtusa</em></td>
<td>–/–/4.3</td>
<td>North Coast Ranges, Cascade Range, northern and central Sierra Nevada, and Modoc Plateau; in Butte, Glenn, Humboldt, Lassen, Nevada, Plumas, Shasta, Sierra, Tehama, and Tuolumne Counties; Idaho, Oregon, Washington and elsewhere</td>
<td>Mesic areas in lower and upper montane coniferous forest, riparian woodland; 150-2,135 meters</td>
<td>May-Oct</td>
<td>Berry Creek, Butte Meadows, Humboldt Peak, Jonesville, Kimshew Point; habitat potentially present in riparian woodland and coniferous forest along drainages</td>
</tr>
<tr>
<td>Sickle-fruit jewel-flower</td>
<td><em>Streptanthus drepanoides</em></td>
<td>–/–/4.3</td>
<td>Southernmost Klamath Ranges, high North Coast Ranges, northern interior North Coast Ranges, northern Sierra Nevada Foothills: Butte, Colusa, Lake, Glenn, Mendocino, Shasta, Tehama, and Trinity Counties</td>
<td>On serpentine in chaparral, cismontane woodland, lower montane coniferous forest; 275-1,660 meters</td>
<td>Apr-Jun</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDDB; habitat potentially present in chaparral, oak woodland, and coniferous forest</td>
</tr>
<tr>
<td>Long-fruit jewel-flower</td>
<td><em>Streptanthus longisiliqus</em></td>
<td>–/–/4.3</td>
<td>Butte, Shasta, and Tehama Counties</td>
<td>Cismontane woodland, lower montane coniferous forest/openings; 715-1,500 meters</td>
<td>Apr-Sep</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDDB; habitat potentially present in oak and riparian woodlands and coniferous forest</td>
</tr>
<tr>
<td>Water awlwort</td>
<td><em>Subularia aquatica var. americana</em></td>
<td>–/–/4.3</td>
<td>Butte, Lassen, Nevada, Plumas, Shasta, Sierra, Tuolumne Counties; also, Nevada, Oregon, Utah, Washington, and elsewhere</td>
<td>Lake margins in upper montane coniferous forest; 1,900-3,100 meters</td>
<td>Jul-Sep</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDDB; habitat potentially present in coniferous forest</td>
</tr>
<tr>
<td>Butte County golden clover</td>
<td><em>Trifolium jokerstii</em></td>
<td>–/–/1B.2</td>
<td>Known only from Butte County</td>
<td>Moist areas in valley and foothill grassland, swales, vernal pool margins; 50-385 meters</td>
<td>Mar-May</td>
<td>Oroville, Shippee; habitat present in annual grasslands and vernal pools</td>
</tr>
<tr>
<td>Greene’s tuctoria</td>
<td><em>Tuctoria greenei</em></td>
<td>E/R/1B.1</td>
<td>Scattered distribution along eastern Central Valley and foothills from Shasta County to Tulare County</td>
<td>Dry vernal pools; 30-1,070 meters</td>
<td>May-Sep</td>
<td>Biggs, Hamlin Canyon, Richardson Springs NW, Nord, Shippee; habitat present in vernal pools</td>
</tr>
</tbody>
</table>
### Table 4.4-1  Special-Status Plant Species Known or With Potential to Occur in Butte County (continued)

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Listing Statusa</th>
<th>Geographic Distribution</th>
<th>Habitat Associations; Elevation</th>
<th>Flowering Period</th>
<th>Species Occurrencesb and Habitat in Butte County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat-leaved bladderwort</td>
<td><em>Utricularia intermedia</em></td>
<td>–/–/2.2</td>
<td>Scattered occurrences in Cascade Range, high Sierra Nevada, and Modoc Plateau: Butte, Fresno, Modoc, Plumas, and Tulare Counties; also Idaho, Nevada, Utah, Washington, and elsewhere</td>
<td>Bogs, meadows, seeps, marshes, lake margins; 1,200-2,700 meters</td>
<td>Jul-Aug</td>
<td>Jonesville; habitat present in wet meadows and along high-elevation open water</td>
</tr>
<tr>
<td>Lesser bladderwort</td>
<td><em>Utricularia minor</em></td>
<td>–/–/4.2</td>
<td>Scattered occurrences in northeast California: Butte, El Dorado, Fresno, Lassen, Modoc, Nevada, Plumas, Shasta, Sierra, Tehama, Tulare, and Tuolumne Counties; also Arizona, Idaho, Nevada, Utah, and Washington</td>
<td>Shallow freshwater in bogs, marshes, swamps, and lake margins; 800-2,900 meters</td>
<td>Jul</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDDB; habitat potentially present in freshwater marsh and along high-elevation open water</td>
</tr>
<tr>
<td>Siskiyou Mountains huckleberry</td>
<td><em>Vaccinium coccineum</em></td>
<td>–/–/3.3</td>
<td>Butte, Plumas, Sierra, Siskiyou, and Yuba Counties; Oregon</td>
<td>Lower and upper montane coniferous forest, often on serpentinite; 1,095-2,135 meters</td>
<td>Jun-Aug</td>
<td>Clipper Mills, Soapstone Hill; habitat present in coniferous forest</td>
</tr>
<tr>
<td>Woolly violet</td>
<td><em>Viola tomentosa</em></td>
<td>–/–/4.2</td>
<td>Butte, El Dorado, Nevada, Placer, Plumas, and Sierra Counties</td>
<td>On gravelly soils in lower and upper montane coniferous forest and submontane coniferous forest; 1,435-2,000 meters</td>
<td>May-Oct</td>
<td>No specific quadrangles in CNPS and no recorded occurrences in CNDDDB; habitat potentially present in coniferous forest</td>
</tr>
<tr>
<td>Columbian watermeal</td>
<td><em>Wolffia brasiliensis</em></td>
<td>–/–/2.3</td>
<td>Few occurrences along Sacramento River in Butte and Glenn Counties; elsewhere</td>
<td>Shallow freshwater in marshes and swamps; 30-100 meters</td>
<td>Apr-Dec</td>
<td>Llano Seco, Ord Ferry, Pennington; habitat present in freshwater marsh</td>
</tr>
</tbody>
</table>

* Species proposed for coverage in the Butte County Regional HCP/NCCP.

a  Status explanations:

Federal

E = Listed as endangered under the federal Endangered Species Act.
T = Listed as threatened under the federal Endangered Species Act.
— = No listing status.
<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Listed as endangered under the California Endangered Species Act.</td>
</tr>
<tr>
<td>R</td>
<td>Listed as rare under the California Endangered Species Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.</td>
</tr>
<tr>
<td>—</td>
<td>No listing status. California Native Plant Society</td>
</tr>
</tbody>
</table>

California Native Plant Society

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
3 = List 3 species: plants for which we need more information – Review list
4 = List 4 species: plants of limited distribution – Watch list

Threat Code extensions:

.1 = Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2 = Fairly threatened in California (20-80% of occurrences threatened; moderate degree and immediacy of threat)
.3 = Not very threatened in California (less than 20% of occurrences threatened or no current threats known)

b This information includes the 7.5-minute USGS quadrangles listed in either the CNDDB (2009) or CNPS Inventory (2009) as having known occurrences of the species. As noted below, the CNDDB does not have occurrence records for some of the species in any Butte County quadrangles, and the CNPS occurrence record is for Butte County, but not specific quadrangles.

c Known populations believed to be extirpated from this county.

Sources:
Critical habitat is defined in Section 3 of the ESA as the specific area within the geographic range occupied by the species at the time it is listed. In accordance with the ESA, critical habitat includes those biological features essential to the conservation of the species and that may require special management considerations or protection. Specific areas outside the geographical area occupied by a species at the time it is listed may also be included when such areas are essential for the conservation of the species.

The USFWS has designated critical habitat for Hoover’s spurge, Butte County meadowfoam, hairy Orcutt grass, slender Orcutt grass, and Greene’s tuctoria, all of which are vernal pool species, in the northwestern portion of Butte County, as shown in Figure 4.4-3.

b. Special-Status Wildlife
Based on a review of existing information, 43 special-status wildlife species have been documented or have the potential to occur in Butte County; these species are listed in Table 4.4-2. Of these species, 19 are State- or federally-listed or are candidates for federal listing, and 33 are fully protected or California species of special concern. Locations of known special-status wildlife occurrences in Butte County are presented in Figure 4.4-2.

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- Winter Run Chinook Critical Habitat
- Green Sturgeon Critical Habitat
- Central Valley Chinook Critical Habitat
- Central Valley Steelhead Critical Habitat
- Proposed California Red-Legged Frog Critical Habitat
- Vernal Pool Species Critical Habitat

Airports

Greenline

Highways

Railroad

Major Roads

Sphere of Influence

City/Town Limits

County Boundary

FIGURE 4.4-3

CRITICAL HABITAT
## Table 4.4-2  Special-Status Wildlife Species Documented or Identified as Having the Potential to Occur in the Planning Area

<table>
<thead>
<tr>
<th>Common and Scientific Name</th>
<th>Status&lt;sup&gt;a&lt;/sup&gt; Federal/State</th>
<th>Distribution</th>
<th>Preferred Habitats</th>
<th>USGS Quadrangles in the Planning Area where Known Occurrences Have Been Documented&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Invertebrates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conservancy fairy shrimp&lt;sup&gt;*&lt;/sup&gt; <em>Branchinecta conservatio</em></td>
<td>E/-</td>
<td>Disjunct occurrences in Solano, Merced, Tehama, Butte, and Glenn Counties.</td>
<td>Large, deep vernal pools in annual grasslands.</td>
<td>Nord</td>
</tr>
<tr>
<td>Vernal pool fairy shrimp&lt;sup&gt;*&lt;/sup&gt; <em>Branchinecta lynchi</em></td>
<td>T/-</td>
<td>Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County.</td>
<td>Common in vernal pools; also found in sandstone rock outcrop pools.</td>
<td>Nord, Richardson Springs, Shippee, Vina, Biggs, Oroville, Palermo</td>
</tr>
<tr>
<td>Vernal pool tadpole shrimp&lt;sup&gt;*&lt;/sup&gt; <em>Lepidurus packardi</em></td>
<td>E/-</td>
<td>Shasta County south to Merced County.</td>
<td>Vernal pools and ephemeral stock ponds.</td>
<td>Nord, Richardson Springs, Shippee, Vina, Oroville, Chico, Hamlin Canyon</td>
</tr>
<tr>
<td>Valley elderberry longhorn beetle&lt;sup&gt;*&lt;/sup&gt; <em>Desmocerus californicus dimorphus</em></td>
<td>T/-</td>
<td>Stream side habitats below 3,000 feet throughout the Central Valley.</td>
<td>Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant.</td>
<td>Llano Seco, Biggs, Palermo, West of Biggs, Richardson Springs, Ord Ferry, Foster Island, Chico, Loma Rica, Pulga</td>
</tr>
<tr>
<td><strong>Amphibians</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California tiger salamander&lt;sup&gt;*&lt;/sup&gt; <em>Ambystoma californiense</em></td>
<td>T/PE</td>
<td>Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County.</td>
<td>Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy</td>
<td>Pennington (this is the only known occurrence in Butte County, and it is considered extirpated). Butte County is within species range and suitable habitat is present.</td>
</tr>
<tr>
<td>Western spadefoot toad&lt;sup&gt;*&lt;/sup&gt; <em>Spea hammondii</em></td>
<td>~-/SSC</td>
<td>Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California.</td>
<td>Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands.</td>
<td>Richardson Springs, Bangor</td>
</tr>
<tr>
<td>California red-legged frog&lt;sup&gt;*&lt;/sup&gt; <em>Rana aurora draytonii</em></td>
<td>T/SSC</td>
<td>Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County.</td>
<td>Permanent and semi-permanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May estivate in rodent burrows or cracks during dry periods.</td>
<td>Berry Creek</td>
</tr>
</tbody>
</table>
| Common and Scientific Name | Status\[
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foothill yellow-legged frog</strong>&lt;sup&gt;a&lt;/sup&gt; <em>Rana boylii</em></td>
<td>Í/-SSC</td>
</tr>
<tr>
<td><strong>Cascades frog</strong> <em>Rana cascadae</em></td>
<td>Í/-SSC</td>
</tr>
<tr>
<td><strong>Sierra Nevada yellow-legged frog</strong> <em>Rana sierrae</em></td>
<td>C/SSC</td>
</tr>
<tr>
<td><strong>Northwestern pond turtle</strong>&lt;sup&gt;a&lt;/sup&gt; <em>Actinemys marmorata marmorata</em></td>
<td>Í/-SSC</td>
</tr>
<tr>
<td><strong>Coast (California) horned lizard</strong>&lt;sup&gt;a&lt;/sup&gt; <em>Phrynosoma coronatum</em> (frontal population)</td>
<td>Í/-SSC</td>
</tr>
<tr>
<td><strong>Giant garter snake</strong>&lt;sup&gt;a&lt;/sup&gt; <em>Thamnophis gigas</em></td>
<td>T/T</td>
</tr>
</tbody>
</table>

### Distribution

- **Foothill yellow-legged frog**<sup>a</sup> *Rana boylii*: Occurs in the Klamath, Cascade, north Coast, south Coast, Transverse, and Sierra Nevada Ranges up to approximately 6,000 feet.
- **Cascades frog** *Rana cascadae*: Found in the Shasta-Trinity region east to the Modoc Plateau and south to the Lassen area and the upper Feather river system.
- **Sierra Nevada yellow-legged frog** *Rana sierrae*: Found in the Sierra Nevada above 4,500 feet from Plumas County to southern Tulare County. Isolated populations in Butte County and near Mono Lake, Mono County.
- **Northwestern pond turtle**<sup>a</sup> *Actinemys marmorata marmorata*: Occurs from the Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada.
- **Coast (California) horned lizard**<sup>a</sup> *Phrynosoma coronatum* (frontal population): Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California.
- **Giant garter snake**<sup>a</sup> *Thamnophis gigas*: Central Valley from Fresno north to the Gridley/Sutter Buttes area; has been extirpated from areas south of Fresno.

### Preferred Habitats

- **Foothill yellow-legged frog**<sup>a</sup> *Rana boylii*: Creeks or rivers in woodlands or forests with rock and gravel substrate and low overhanging vegetation along the edge. Usually found near riffles with rocks and sunny banks nearby.
- **Cascades frog** *Rana cascadae*: Ephemeral and permanent ponds and streams. Oviposition habitat is open, shallow water in unshaded areas. Overwinter underwater or in saturated ground.
- **Sierra Nevada yellow-legged frog** *Rana sierrae*: Associated with streams, lakes, and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitats.
- **Northwestern pond turtle**<sup>a</sup> *Actinemys marmorata marmorata*: Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests.
- **Coast (California) horned lizard**<sup>a</sup> *Phrynosoma coronatum* (frontal population): Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging.
- **Giant garter snake**<sup>a</sup> *Thamnophis gigas*: Sloughs, canals, and other small water-ways where there is a prey base of small fish and amphibians; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.

### USGS Quadrangles in the Planning Area where Known Occurrences Have Been Documented<sup>b</sup>

- **Foothill yellow-legged frog**<sup>a</sup> *Rana boylii*: Clipper Mills, Cascade, Brush Creek, Berry Creek, Pulga.
- **Cascades frog** *Rana cascadae*: Butte Meadows, Kimshew Point, Jonesville, Humboldt Peak.
- **Sierra Nevada yellow-legged frog** *Rana sierrae*: Clipper Mills.
- **Northwestern pond turtle**<sup>a</sup> *Actinemys marmorata marmorata*: Palermo, Pennington, Brush Creek, Shippee, Sanborn Slough, Oroville, Berry Creek, Pulga, Chico.
- **Coast (California) horned lizard**<sup>a</sup> *Phrynosoma coronatum* (frontal population): Oroville, Hamlin Canyon.
- **Giant garter snake**<sup>a</sup> *Thamnophis gigas*: West of Biggs, Pennington, Llano Seco, Butte City, Nelson, Biggs, Sanborn Slough, Ord Ferry, Gridley.
<table>
<thead>
<tr>
<th>Common and Scientific Name</th>
<th>Status&lt;sup&gt;a&lt;/sup&gt; Federal/ State</th>
<th>Distribution</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White-tailed kite&lt;sup&gt;#&lt;/sup&gt; <em>Elanus leucurus</em></td>
<td>~/FP</td>
<td>Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County.</td>
<td>Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands.</td>
<td>No CNDDB (2009) records for occurrences in the Planning Area but Butte County within species range and suitable habitat present.</td>
</tr>
<tr>
<td>Bald eagle&lt;sup&gt;#&lt;/sup&gt; <em>Haliaeetus leucocephalus</em></td>
<td>D/E, FP</td>
<td>Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County.</td>
<td>In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean.</td>
<td>Berry Creek, Brush Creek, Forbestown, Paradise East, Richardson Springs, Oroville Dam</td>
</tr>
<tr>
<td>Northern harrier <em>Circus cyaneus</em></td>
<td>~/SSC</td>
<td>Occurs throughout lowland California; has been recorded in fall at high elevations.</td>
<td>Grasslands, meadows, marshes, and seasonal and agricultural wetlands.</td>
<td>Biggs, Sanborn Slough</td>
</tr>
<tr>
<td>Northern goshawk <em>Accipiter gentilis</em></td>
<td>~/SSC</td>
<td>Permanent resident in the Klamath and Cascade Ranges, in the north Coast Ranges from Del Norte County to Mendocino County, and in the Sierra Nevada south to Kern County. Winters in Modoc, Lassen, Mono, and northern Inyo Counties.</td>
<td>Nests and roosts in older stands of red fir, Jeffrey pine, Ponderosa pine, lodgepole pine, Douglas fir, and mixed conifer forests.</td>
<td>Jonesville, Kimshew Point, Forbestown, Clipper Mills, Butte Meadows</td>
</tr>
<tr>
<td>Swainson’s hawk&lt;sup&gt;#&lt;/sup&gt; <em>Buteo swainsoni</em></td>
<td>~/T</td>
<td>Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County.</td>
<td>Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields.</td>
<td>Pennington, Llano Seco, Nelson, Ord Ferry, Butte City, Glenn, Foster Island, Richardson Springs, Chico, Biggs</td>
</tr>
<tr>
<td>Golden eagle <em>Aquila chrysaetos</em></td>
<td>~/FP</td>
<td>Foothills and mountains throughout California. Uncommon non-breeding visitor to lowlands such as the Central Valley.</td>
<td>Nest on cliffs and escarpments or in tall trees overlooking open country. Forages in annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals.</td>
<td>No CNDDB (2009) records for occurrences in the Planning Area but Butte County within species range and suitable habitat present.</td>
</tr>
</tbody>
</table>
### Table 4.4-2  Special-Status Wildlife Species Documented or Identified as Having the Potential to Occur in the Planning Area (continued)

<table>
<thead>
<tr>
<th>Common and Scientific Name</th>
<th>Status(^a) Federal/ State</th>
<th>Distribution</th>
<th>Preferred Habitats</th>
<th>USGS Quadrangles in the Planning Area where Known Occurrences Have Been Documented(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>American peregrine falcon <em>Falco peregrinus anatum</em></td>
<td>–/E, FP</td>
<td>Permanent resident along the north and south Coast Ranges. May summer in the Cascade and Klamath Ranges and through the Sierra Nevada to Madera County. Winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range.</td>
<td>Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large prey populations.</td>
<td>Hamlin Canyon, Paradise West</td>
</tr>
<tr>
<td>California black rail <em>Laterallus jamaicensis coturniculus</em></td>
<td>–/T, FP</td>
<td>Permanent resident in the San Francisco Bay and east-ward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties.</td>
<td>Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations.</td>
<td>Sanborn Slough</td>
</tr>
<tr>
<td>Greater sandhill crane <em>Grus canadensis tabida</em> (nesting and wintering)</td>
<td>–/T, FP</td>
<td>Breeds in Siskiyou, Modoc, Lassen, Plumas, and Sierra Counties. Winters in the Central Valley, southern Imperial County, Lake Havasu National Wildlife Refuge, and the Colorado River Indian Reserve.</td>
<td>Summers in open terrain near shallow lakes or freshwater marshes. Winters in plains and valleys near bodies of fresh water.</td>
<td>Pennington, Gridley</td>
</tr>
<tr>
<td>Western yellow-billed cuckoo <em>Coccyzus americanus occidentalis</em> (nesting)</td>
<td>C/E</td>
<td>Nests along the upper Sacramento, lower Feather, south fork of the Kern, Amargosa, Santa Ana, and Colorado Rivers.</td>
<td>Wide, dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are preferred for foraging; may avoid valley-oak riparian habitats where scrub jays are abundant.</td>
<td>Foster Island, Ord Ferry, Llano Seco, Sanborn Slough, Butte City</td>
</tr>
<tr>
<td>Western burrowing owl <em>Athene cunicularia hypugae</em></td>
<td>–/SSC</td>
<td>Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast.</td>
<td>Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows.</td>
<td>Richardson Springs, Llano Seco, Biggs, Chico</td>
</tr>
<tr>
<td>Common and Scientific Name</td>
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<td>Distribution</td>
<td>Preferred Habitats</td>
<td>USGS Quadrangles in the Planning Area where Known Occurrences Have Been Documented(^b)</td>
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<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Short-eared owl <em>Asio flammeus</em></td>
<td>–/SSC</td>
<td>Permanent resident along the coast from Del Norte County to Monterey County although very rare in summer north of San Francisco Bay, in the Sierra Nevada north of Nevada County, in the plains east of the Cascades, and in Mono County; small, isolated populations.</td>
<td>Freshwater and salt marshes, lowland meadows, and irrigated alfalfa fields; needs dense tules or tall grass for nesting and daytime roosts.</td>
<td>No CNDDB (2009) records for occurrences in the Planning Area but Butte County within species range and suitable habitat present.</td>
</tr>
<tr>
<td>California spotted owl <em>Strix occidentalis occidentalis</em></td>
<td>–/SSC</td>
<td>Sierra Nevada from Lassen County south to northern Kern County, and in the Transverse, Peninsular and southern coastal mountains.</td>
<td>Mature forest with suitable nesting trees. In southern California, occurs in oak and oak-conifer habitats in addition to mature conifer forest.</td>
<td>Many occurrences on many quadrangles in the eastern portion of the Planning Area (CNDDB (2009)).</td>
</tr>
<tr>
<td>Black swift <em>Cypseloides niger</em> (nesting)</td>
<td>–/SSC</td>
<td>Breeds very locally in the Sierra Nevada and Cascade Range, the San Gabriel, San Bernardino, and San Jacinto mountains, and in coastal bluffs from San Mateo county south to near San Luis Obispo County.</td>
<td>Nests in moist crevice or cave on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons.</td>
<td>Brush Creek</td>
</tr>
<tr>
<td>Vaux’s swift <em>Chaetura vauxi</em></td>
<td>–/SSC</td>
<td>Coastal belt from Del Norte County south to Santa Cruz County and in mid-elevation forests of the Sierra Nevada and Cascade Range.</td>
<td>Nests in hollow, burned-out tree trunks in large conifers.</td>
<td>No CNDDB (2009) records for occurrences in the Planning Area but Butte County within species range and suitable habitat present.</td>
</tr>
<tr>
<td>Willow flycatcher <em>Empidonax traillii</em></td>
<td>–/E</td>
<td>Summers along the western Sierra Nevada from El Dorado to Madera County, in the Cascade and northern Sierra Nevada in Trinity, Shasta, Tahama, Butte, and Plumas Counties, and along the eastern Sierra Nevada from Lassen to Inyo County.</td>
<td>Riparian areas and large wet meadows with abundant willows. Usually found in riparian habitats during migration.</td>
<td>Jonesville</td>
</tr>
</tbody>
</table>
### Table 4.4-2  Special-Status Wildlife Species Documented or Identified as Having the Potential to Occur in the Planning Area (continued)

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Bank swallow* <em>Riparia riparia</em></td>
<td>(-/T)</td>
<td>Occurs along the Sacramento River from Tehama County to Sacramento County, along the Feather and lower American Rivers, in the Owens Valley; and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou Counties. Small populations near the coast from San Francisco County to Monterey County.</td>
<td>Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam.</td>
<td>Llano Seco, Glenn, Ord Ferry, Foster Island, Vina, Palermo, Honcut, Gridley</td>
</tr>
<tr>
<td>Loggerhead shrike <em>Lanius ludovicianus</em></td>
<td>(-/SSC)</td>
<td>Resident and winter visitor in lowlands and foothills throughout California. Rare on coastal slope north of Mendocino County, occurring only in winter.</td>
<td>Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.</td>
<td>Shippee</td>
</tr>
<tr>
<td>Yellow-breasted chat* <em>Icteria virens</em></td>
<td>(-/SSC)</td>
<td>Nests locally in coastal mountains and Sierra Nevada foothills, east of the Cascades in northern California, along the Colorado river, and very locally inland in southern California.</td>
<td>Nests in dense riparian habitats dominated by willows, alders, Oregon ash, tall weeds, blackberry vines, and grapevines.</td>
<td>No CNDDB (2009) records for occurrences in the Planning Area but Butte County within species range and suitable habitat present.</td>
</tr>
<tr>
<td>Tricolored blackbird* <em>Agelaius tricolor</em></td>
<td>(-/SSC)</td>
<td>Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties.</td>
<td>Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony.</td>
<td>Llano Seco, Chico, Shippee, Palermo</td>
</tr>
</tbody>
</table>
### Table 4.4-2  Special-Status Wildlife Species Documented or Identified as Having the Potential to Occur in the Planning Area (continued)

<table>
<thead>
<tr>
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<th>Preferred Habitats</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Yellow warbler <em>Dendroica petechia brewsteri</em> (nesting)</td>
<td>~()/SSC</td>
<td>Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Two small permanent populations in San Diego and Santa Barbara Counties</td>
<td>Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses</td>
<td>Shippee</td>
</tr>
</tbody>
</table>

**Mammals**

<table>
<thead>
<tr>
<th>Common and Scientific Name</th>
<th>Status(^a)</th>
<th>Distribution</th>
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<th>USGS Quadrangles in the Planning Area where Known Occurrences Have Been Documented(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western red bat <em>Lasiurus blossevillii</em></td>
<td>~()/SSC</td>
<td>Scattered throughout much of California at lower elevations</td>
<td>Found primarily in riparian and wooded habitats. Occurs at least seasonally in urban areas. Day roosts in trees within the foliage. Found in fruit orchards and sycamore riparian habitats in the Central Valley</td>
<td>Stirling City, Strawberry Valley, Ord Ferry</td>
</tr>
<tr>
<td>Townsend’s big-eared bat <em>Corynorhinus townsendii</em></td>
<td>~()/SSC</td>
<td>Throughout California from low desert to mid-elevation montane habitats.</td>
<td>Desert, oak woodland, coastal redwood, and mixed coniferous-deciduous forest. Day roosts in cave-like spaces including mines, caves, tunnels, and dark spaces in buildings, such as attics. May night roost in more open areas such as under bridges.</td>
<td>No CNDDB (2009) records for occurrences in the Planning Area but Butte County within species range and suitable habitat present.</td>
</tr>
<tr>
<td>Pallid bat <em>Antrozous pallidus</em></td>
<td>~()/SSC</td>
<td>Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid-elevations.</td>
<td>Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts.</td>
<td>Forbestown, Strawberry Valley, Chico, Berry Creek</td>
</tr>
</tbody>
</table>
### Special-Status Wildlife Species Documented or Identified as Having the Potential to Occur in the Planning Area (continued)

<table>
<thead>
<tr>
<th>Common and Scientific Name</th>
<th>Status(^a) Federal/ State</th>
<th>Distribution</th>
<th>Preferred Habitats</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Western mastiff bat Eumops perotis</td>
<td>–/SSC</td>
<td>Occurs along the western Sierra primarily at low to mid elevations and widely distributed throughout the southern coast ranges. Surveys have detected the species north to the Oregon border.</td>
<td>Found in a wide variety of habitats from desert scrub to montane conifer. Roosts and breeds in deep, narrow rock crevices, but may also use crevices in trees, buildings, and tunnels.</td>
<td>Chico, Oroville, Richardson Springs NW, Ord Ferry</td>
</tr>
<tr>
<td>Sierra Nevada snowshoe hare Lepus americanus taboensis</td>
<td>–/SSC</td>
<td>Occurs in the Cascade mountains in Siskiyou and Del Norte Counties and the Sierra Nevada from Mt. Lassen south to Mono and Tulare Counties, generally between 4,800 and 8,000 feet.</td>
<td>Found in dense thickets of conifers, riparian vegetation, or chaparral in boreal life zones.</td>
<td>No CNDDDB (2009) records for occurrences in the Planning Area but Butte County within species range and suitable habitat present.</td>
</tr>
<tr>
<td>Sierra Nevada red fox Vulpes vulpes necator</td>
<td>–/T</td>
<td>Occurs in the Cascade Range, in Siskiyou County, and in the Sierra Nevada from Lassen County south to Tulare County.</td>
<td>Alpine dwarf-shrub, wet meadow, subalpine conifer, lodgepole pine, red fir, aspen, montane chaparral, montane riparian, mixed conifer, and ponderosa pine. In the Sierra Nevada, most sightings have been above 7,000 feet.</td>
<td>Butte Meadows, Jonesville</td>
</tr>
<tr>
<td>Pacific fisher Martes pennanti pacifica</td>
<td>C/SSC</td>
<td>Coastal mountains from Del Norte County to Sonoma Counties, east through the Cascades to Lassen County, and south in the Sierra Nevada to Kern County.</td>
<td>Late successional coniferous forests and montane riparian habitats.</td>
<td>Brush Creek</td>
</tr>
<tr>
<td>American badger Taxidea taxus</td>
<td>–/SSC</td>
<td>Throughout California, except for the humid coastal forests of northwestern California in Del Norte and the northern Humboldt Counties.</td>
<td>Requires sufficient food, friable soils, and relatively open uncultivated ground; preferred habitat includes grasslands, savannas, and mountain meadows near timberline.</td>
<td>Llano Seco</td>
</tr>
</tbody>
</table>
### Table 4.4-2

**Common and Scientific Name**: California wolverine

<table>
<thead>
<tr>
<th>Status/State</th>
<th>Distribution</th>
<th>Preferred Habitats</th>
</tr>
</thead>
<tbody>
<tr>
<td>–/T, FP</td>
<td>Klamath and Cascade Ranges south through Tulare County.</td>
<td>Found in a variety of mountain habitats. In north coastal areas, most sightings have been between 1,600 and 4,800 feet. The species has been found between 4,300 and 7,300 feet in the northern Sierra Nevada and between 6,400 and 10,800 in the Southern Sierra Nevada. Most common in open terrain above timberline and subalpine forests.</td>
</tr>
</tbody>
</table>

Critical habitat for conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp was designated by USFWS on August 11, 2005 (70 FR 46924–46999). Critical habitat in Butte County for the branchiopods listed above is located northwest of Chico to the county line and from Chico southeast to Oroville, as shown in Figure 4.4-3 as vernal pool species. Critical habitat for the California red-legged frog was designated on April 13, 2006 (71 FR 19244-19346), and revised critical habitat was proposed on September 16, 2008 (71 FR 53492–53680). Proposed critical habitat for the California red-legged frog is located in the eastern-central portion of Butte County.

c. Special-Status Fish
A total of five federally-listed fish species are known to occur in Butte County based on the USFWS list of sensitive species in Butte County and a review of existing information. An additional three species are California species of special concern. All eight of the fish species are proposed for coverage in the Butte Regional HCP/NCCP. However, one species, the Sacramento spittail, is not likely to occur in the Sacramento or Feather River in Butte County. They are frequently found in the Sacramento River below the mouth of the Feather River and rarely upstream.42

For fish, critical habitat includes waterways, substrate, and adjacent riparian zones that provide spawning, rearing, and migrating areas that are essential to the survival of the species. Areas above impassable barriers such as dams or naturally impassable barriers are not included in critical habitat designation (64 FR 24050, May 5, 1999). Critical habitat for steelhead, Chinook salmon, and the southern distinct population segment (DPS) of green sturgeon is designated within Butte County.

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Critical habitat for Central Valley steelhead (70 FR 52614 September 2, 2005) and Central Valley spring-run Chinook salmon is designated in the Feather River from the confluence of the Yuba River upstream to the Oroville Dam (70 FR 52598, September 2, 2005) and in the Sacramento River and its tributaries in Butte County, including Big Chico Creek, Butte Creek, Lindo Channel, Mud Creek and Rock Creek. The Sacramento River in Butte County is designated as critical habitat for winter-run Chinook salmon (58 FR 33212). The southern DPS of green sturgeon has designated critical habitat in the Sacramento River and the Feather River up to Oroville Dam (74 FR 52300 October 9, 2009).

Essential fish habitat (EFH) is the aquatic habitat, including water and substrate, necessary for fish to spawn, breed, feed, or grow to maturity that will allow a level of production needed to support a long-term, sustainable commercial fishery and contribute to a healthy ecosystem. All runs of Chinook salmon (spring, winter, and fall/late-fall) are covered under the Magnuson-Stevens Act which protects EFH.

3. Migratory Deer Herds
Protection of Butte County’s resident and migratory deer herds has long been an issue of concern for the County. In the early 1980s, DFG developed management plans for migratory deer herds in California, which included migratory deer ranges in Butte County. Butte County relied upon DFG’s deer range maps to establish zones where development is restricted in order to protect the deer herds. As part of the General Plan 2030 effort, wildlife biologists updated the map of winter and critical winter range migratory deer herd areas. This update process involved a GIS analysis of vegetation, elevation and terrain preferences for migratory deer, based on consultations with DFG staff. The revised map is displayed in Figure 4.4-4.

---

Migratory deer herds migrate from higher elevations in Plumas and Lassen Counties to lower elevation winter range areas in Butte County. As shown in Figure 4.4-4, there are some portions of this winter range in Butte County that are considered to be critical winter range areas, which include habitat that is critical to the survival of the migratory deer herds during severe winter conditions. The non-critical areas, also mapped in Figure 4.4-4, provide habitat that is suitable for winter conditions, but not critical during severe winter conditions.

The updated deer herd winter range mapping developed for General Plan 2030 was based on a number of factors that affect habitat value, including vegetation, elevation, and terrain preferences, as well as the extent of fire suppression activities, since fire suppression can change the ecological conditions and lead to habitat deterioration. In addition, data showing actual existence of the deer herds was considered in the mapping process.

4. Important Wildlife Areas

Important wildlife areas in Butte County are public lands that have been conserved for the benefit of wildlife. Often these areas have a recreational or educational component as well. These areas provide the essential habitat components of food, water and shelter, as well as areas for breeding, nesting, and rearing of young for wildlife. Important wildlife areas in unincorporated Butte County include the Big Chico Creek Ecological Preserve, Butte Creek Ecological Preserve, Table Mountain, Gray Lodge Wildlife Area, Oroville Wildlife Area, Sacramento River Wildlife Area, and Sacramento River National Wildlife Refuge. These important wildlife areas are also shown in Figure 4.4-1. A brief overview of each of these areas follows.

a. Big Chico Creek Ecological Preserve
The Big Chico Creek Ecological Preserve is located approximately 7 miles northeast of Chico, in the foothills of the Sierra Nevada. The preserve is 3,950 acres in size and includes and protects 4.5 miles of Big Chico Creek. Habitats within the preserve include creek ruffles and pools, riparian areas, oak woodlands, chaparral, pine forest, rock cliffs, and springs, which support
more than 140 different wildlife species, including a number of listed species.\textsuperscript{44} The Research Foundation of California State University, Chico, operates this preserve through the Bidwell Environmental Institute.

b. Butte Creek Ecological Preserve
The Butte Creek Ecological Preserve is a 93-acre parcel located along the middle section of Butte Creek. The preserve includes more than a mile of habitat along the creek, which provides critical salmon habitat and spawning grounds.\textsuperscript{45} The Research Foundation of California State University, Chico, operates this preserve through the Bidwell Environmental Institute.

c. Table Mountain
Table Mountain is a plateau of ancient volcanic rock located just north of Oroville. The DFG owns a portion of Table Mountain and manages it as a wildlife area. Most people know the area for its unique and spectacular spring wildflower display that occurs after vernal pools on the mountain have dried. Other habitats at Table Mountain include open grasslands, oak woodlands, vertical cliff faces, beds of angular volcanic cobble, and wetlands, which provide food, shelter and water for a number of animals, including reptiles, birds, and mammals. Special-status birds that occur at the wildlife area include the burrowing owl, peregrine falcon, Swainson’s hawk, and golden eagle.\textsuperscript{46}

\textsuperscript{44} Big Chico Creek Ecological Reserve, no date. Available: \url{<http://www.csuchico.edu/bei/BCCER/include/aboutBccer/aboutIndex.html>}. Accessed: January 12, 2007.


d. Gray Lodge Wildlife Area

The Gray Lodge Wildlife Area is a 9,100-acre wildlife preserve located southwest of Gridley, and is managed by the DFG. Its location along the Pacific Flyway provides habitat for many species of birds, including more than 1 million wintering waterfowl, as well as gulls, American white pelicans (*Pelecanus erythrorhynchos*), hawks, eagles, white-tailed kites, and owls, including burrowing owls. Freshwater marsh is abundant within the refuge, supporting a diversity of wetland plants, invertebrates, fish, amphibians, reptiles, water birds and mammals. There are also about 600 acres of riparian woodlands within the Gray Lodge Wildlife Area, providing habitat for aquatic and terrestrial species like the garter snake, great blue heron, ringtail (*Bassariscus astutus*) and river otter.47

e. Oroville Wildlife Area

The 11,870-acre Oroville Wildlife Area is located 5 miles west of Oroville. It was created subsequent to the construction of the Oroville Dam in order to provide wildlife habitat as mitigation for the dam’s construction. This artificial habitat was formed on dredge tailings along the Feather River and provides habitat for migrating waterfowl, shorebirds, and resident wildlife populations. Wildlife habitats at the Oroville Wildlife Area include riparian forest bordered by 12 miles of river channel, as well as annual grassland, fresh emergent wetlands, and oak woodland. The DFG owns and manages the Oroville Wildlife Area.48

f. Sacramento River Wildlife Area

The Sacramento River Wildlife Area is located along the Sacramento River between Highway 32 and the Glenn County/Colusa County line. It consists of five units totaling 3,737 acres that are owned and managed by the DFG.

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Three of the units are located within or partially within Butte County. Habitats within the wildlife area include riparian woodland, meadows and gravel bars. These lands were acquired to preserve, enhance, and restore Sacramento River riparian wetland habitats and to provide habitat for the wildlife species associated with the area, particularly threatened and endangered species.

g. Sacramento River National Wildlife Refuge
The Sacramento River National Wildlife Refuge (SRNWR) is one of five national wildlife refuges and three wildlife management areas that comprise the Sacramento National Wildlife Refuge Complex, located approximately 90 miles north of Sacramento. The USFWS manages the SRNWR, some of which is within Butte County. Currently, the SNRWR is composed of approximately 10,000 acres of riparian habitat, wetlands, uplands, and intensively managed orchards along a 77-mile stretch of the Sacramento River between Red Bluff and Princeton. Riparian habitat in the SNRWR is critically important for anadromous fish (including four runs of Chinook salmon), migratory birds, plants, and river-system health. Animals found within the SNRWR include turtles, river otter, beaver, mountain lions (*Felis concolor*), American white pelicans, ospreys, and bank swallows.

C. Standards of Significance

General Plan 2030 and the ALUCP override would have a significant biological resource impact if they would:

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♦ Have a substantial adverse effect, either directly or through habitat modifications, on a plant or animal population, or essential habitat, defined as a candidate, sensitive or special-status species.

♦ Have a substantial adverse effect on any riparian habitat or other sensitive natural community type.

♦ Have a substantial adverse effect on federally-protected wetlands as defined by Section 404 of the Clean Water Act, through direct removal, filling, hydrological interruption or other means.

♦ Interfere substantially with the movement of any native resident or migratory fish or wildlife species, their wildlife corridors or nursery sites.

♦ Conflict with any local ordinances or policies protecting biological resources.

♦ Conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional or State habitat conservation plan.

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative biological resource impacts that could occur as a result of implementation of General Plan 2030. Implementation of the ALUCP override would have no biological resource impact in Butte County, and is not discussed further in this section.

1. Project Impacts
   a. Have a substantial adverse effect, either directly or through habitat modifications, on a plant or animal population, or essential habitat, defined as a candidate, sensitive or special-status species.

Development allowed by General Plan 2030 could potentially impact special-status species.
i. Plants

As indicated in Section B.2.a, a search of the CNDDB and CNPS Inventory identified 108 special-status plant species as occurring in Butte County, and the status, distribution, habitat requirements, and identification period for each of these species are provided in Table 4.4-1. Artificial and unvegetated biological communities in the county, including agricultural land, unvegetated drainages, low-elevation open water (i.e. in agricultural areas and large reservoirs), and barren or urban areas, are unlikely to support special-status plants. However, construction activities within annual grassland, wetland, chaparral, oak woodland, riparian woodland, or coniferous forest communities could potentially result in significant impacts on special-status plants.

There are six federally- and/or State-listed plant species known to occur in Butte County, and five non-listed special-status plant species proposed as covered species in the Butte Regional HCP/NCCP. Eight of the eleven listed or HCP/NCCP species occur in vernal pool or mesic annual grassland habitat, including Ferris’ milk-vetch, Hoover’s spurge, Ahart’s dwarf rush, Butte County meadowfoam, hairy Orcutt grass, slender Orcutt grass, Butte County golden clover, and Greene’s tuctoria. One of the eleven species, lesser salt-scale, occurs in alkaline chenopod scrub or annual grassland habitat. The other two species, Layne’s ragwort and Butte County checkerbloom, occur in chaparral and woodland habitat on serpentine and gabbro soils. Although the rest of the 108 species listed in Table 4.4-1 are not federally-listed, State-listed, or proposed as covered species in the HCP/NCCP, losses of these special-status plants would cause potentially significant impacts under CEQA.


ii. **Wildlife**

A total of 43 special-status wildlife species are known to occur or have the potential to occur in Butte County, and the status, distribution, preferred habitat, and occurrence information for each of these species is listed in Table 4.4-2. Development within or near habitat for special-status wildlife species could result in adverse impacts on these species. Potential impacts related to individual species include the following:

♦ **Vernal Pool Branchiopods.** Butte County is within the range of several federally-listed vernal pool branchiopods including conservancy fairy shrimp (endangered), vernal pool fairy shrimp (threatened), and vernal pool tadpole shrimp (endangered), and there are known occurrences of each of these species in Butte County. Seasonal wetlands and vernal pools may provide habitat for some or all of these species. Additionally, USFWS has designated areas of critical habitat from northwest of Chico to the County line and from Chico southeast to Oroville for these three species (FR 71: 7117-7316, February 10, 2006). Construction within or near these habitats could result in mortality of listed vernal pool branchiopods or destruction of their habitat, which could be considered significant impacts.

♦ **Valley Elderberry Longhorn Beetle.** Suitable habitat for valley elderberry longhorn beetle, a federally-threatened species, is present in Butte County. Suitable habitat consists of elderberry shrubs with stems 1 inch or greater at ground level. There are CNDDB records for this species within Butte County. Significant impacts on valley elderberry longhorn beetle may result from the direct removal of shrubs or soil disturbance within the USFWS’s recommended 100-foot-wide no disturbance buffer during construction-related activities, including grading and clearing.

♦ **California Tiger Salamander and California Red-Legged Frog.** The California tiger salamander is a federally-threatened species and has been...
proposed for listing as endangered under the CESA. The California tiger salamander is not known to occur in Butte County, but the county is within the range of this species and suitable habitat is present. The California red-legged frog, a federally-threatened species, is known to occur in Butte County. Suitable aquatic breeding habitat for these species, including large vernal pools (for the California tiger salamander only), drainages with still or slow moving water, and ponds, is present within Butte County. Annual grassland and oak woodland provide suitable upland habitat for the California tiger salamander. Riparian woodland, annual grassland, oak woodland, and fallow fields occurring within 1 mile of suitable California red-legged frog aquatic breeding habitat could be used as upland refuge sites and for dispersing by the California red-legged frog. Additionally, as indicated in Section B.2.b, proposed revised critical habitat for the California red-legged frog is located in the eastern-central portion of Butte County (71 FR 53492–53680; September 16, 2008). Construction activities in or near these habitat areas could result in permanent loss and temporary disturbance of California tiger salamander and/or California red-legged frog aquatic and upland habitat, indirect impacts related to habitat modification or loss, or direct impacts in the form of loss of individual salamanders or frogs. Because California tiger salamanders and California red-legged frogs are rare in this portion of their range, these impacts would be considered significant.

♦ Western Spadefoot Toad. The western spadefoot toad is a California species of special concern, and known to occur in Butte County. Suitable aquatic breeding habitat and upland grassland habitat for this toad are present within Butte County. Construction activities in or near these habitats could result in permanent loss or temporary disturbance of habitat,

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Jennings and Hayes, 1994. Amphibian and Reptile Species of Special Concern in California. California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.

indirect impacts resulting in habitat modification or loss, or direct impacts in the form of loss of individual toads. These impacts would be considered significant if the subsequent population decline was large and/or affected the viability of the local population.

**Foothill Yellow-Legged Frog.** The foothill yellow-legged frog is a California species of special concern, and known to occur in Butte County. Suitable habitat for the foothill yellow-legged frog may be present in perennial and intermittent drainages within Butte County. Construction activities in or near these habitats could result in permanent loss or temporary disturbance of foothill yellow-legged frog habitat, indirect impacts related to habitat modification or loss, or direct impacts in the form of loss of individuals. These impacts would be considered significant if the subsequent population decline was large and/or affected the viability of the local foothill yellow-legged frog population.

**Cascades Frog and Sierra Nevada Yellow-Legged Frog.** The Cascades frog and Sierra Nevada yellow-legged frog are California species of special concern, and the Sierra Nevada yellow-legged frog is a candidate for federal listing. Both are known to occur in Butte County. Suitable habitat for the Cascades frog, including ponds and slow moving streams, and the Sierra Nevada yellow-legged frog, including streams, ponds and lakes, are present within Butte County. Construction activities in or near these habitats could result in permanent loss or temporary disturbance of Cascades frog and/or Sierra Nevada yellow-legged frog habitat, indirect impacts related to habitat modification or loss, or direct impacts in the form of loss of individuals. These impacts would be considered significant if the subsequent population declines were large and/or affected the viability of the local Cascades frog and/or Sierra Nevada yellow-legged frog population.

**Northwestern Pond Turtle.** The northwestern pond turtle is a California species of special concern, and is known to occur in Butte County. Construction-related activities in or near suitable aquatic habitat, including ponds, lakes, marshes, rivers, streams and irrigation ditches, or suitable nesting/overwintering habitat, such as riparian woodlands and grasslands,
could result in mortality of northwestern pond turtles or destruction of their habitat. Declines in populations of northwestern pond turtles throughout the species range have been documented. Loss of individuals within Butte County could diminish the local population and reduce reproductive potential, which could contribute to the further decline of this species. The loss of upland nesting sites or eggs also could decrease the local population. These impacts could be considered significant.

♦ **California Horned Lizard.** The California horned lizard is a California species of special concern, and is known to occur in Butte County. Annual grasslands and woodland areas with sandy or gravely substrates and abundant ant colonies provide suitable habitat for this species. Construction activities in or near these habitats could result in permanent loss or temporary disturbance of habitat, indirect impacts related to habitat modification or loss, or direct impacts in the form of loss of individuals. These impacts would be considered significant if the subsequent population decline was large and/or affected the viability of the local horned lizard population.

♦ **Giant Garter Snake.** The giant garter snake is a federally- and State-listed threatened species, and known to occur in Butte County. Agricultural wetlands and other waterways including irrigation and drainage canals, rice fields, marshes, sloughs, ponds, small lakes, and low gradient streams, as well as adjacent upland areas, such as open grassy areas, provide suitable habitat for the giant garter snake. Construction activities in or near these habitats could result in permanent loss or temporary disturbance of aquatic and upland habitat, indirect impacts related to habitat modification or loss, or direct impacts in the form of loss of individuals. These impacts would be considered significant.

♦ **Special Status Birds.** Butte County is within the breeding range for numerous special-status bird species, including four State-listed threatened species (Swainson’s hawk, California black rail, greater sandhill crane, and

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56 Jennings and Hayes, 1994. *Amphibian and Reptile Species of Special Concern in California.* California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.
bank swallow), three State-listed endangered species (bald eagle, western yellow-billed cuckoo and American peregrine falcon), and 13 California species of special concern or fully protected species (white-tailed kite, northern harrier, northern goshawk, golden eagle, western burrowing owl, short-eared owl, California spotted owl, black swift, Vaux’s swift, loggerhead shrike, yellow-breasted chat, tricolored blackbird, and yellow warbler). Additionally, non-special status migratory birds could nest in Butte County. Raptors, such as eagles, kites, hawks and owls, and other migratory birds and their nests are protected under both California Fish and Game Code Section 3503 (active bird nests) and the MBTA. Construction activities in or near habitat for special-status birds could result in nest disturbance or destruction, which could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Construction activities could also result in the loss of foraging habitat for several bird species, including Swainson’s hawk. Loss of special-status and non-special status bird eggs or nests, or any activities resulting in nest abandonment, could constitute a significant impact.

♦ Special Status Bats. Butte County contains potential roosting and foraging habitat for special-status bats, including the western red bat, Townsend’s big-eared bat, pallid bat, and western mastiff bat, as well as for several non-special-status bats. Potential impacts to bats could result from construction-related disturbance of bat roosts, destruction of active roosts, or the loss of individuals. These impacts would be considered significant if the subsequent population decline was large and/or affected the viability of the local populations of bats.

♦ Sierra Nevada Snowshoe Hare, Sierra Nevada Red Fox, Pacific Fisher, and California Wolverine. Higher elevations above 4,000 feet in Butte County may provide suitable habitat for several species that occur in mountain habitats, such as conifer and montane riparian. There are CNDDB records for Sierra Nevada red fox, which is listed by the State as threatened, and Pacific fisher, a candidate for federal listing and a California species of special concern, in Butte County. There are no CNDDB records for Sierra Nevada snowshoe hare, a California species of special concern, and California wolverine, which is listed by the State as threatened.
and fully protected, in Butte County. Construction activities in or near suitable habitat for these four species could result in permanent loss or temporary disturbance of habitat, indirect impacts related to habitat modification or loss, or direct impacts in the form of loss or disturbance of individuals. These impacts would be considered significant.

♦ American Badger. The American badger is a California species of special concern and is known to occur within Butte County. Annual grassland, valley oak woodland with sparse trees, and wet meadows provide suitable habitat for American badgers. Construction activities in or near these habitats could result in permanent loss or temporary disturbance of habitat, indirect impacts related to habitat modification or loss, or direct impacts in the form of loss or disturbance of individuals. These impacts would be considered significant if the subsequent population decline was large and/or affected the viability of the local American badger population.

iii. Fish
Development allowed by General Plan 2030 also has the potential to cause adverse impacts to special-status fish species. The Feather and Sacramento Rivers and associated tributaries in Butte County provide spawning, rearing and migratory habitat for special-status fish species, such as fall/late fall, winter and spring-run Chinook salmon, Central Valley steelhead, green sturgeon, and river lamprey. As discussed above, critical habitat for Chinook salmon and steelhead is designated in the Feather and Sacramento Rivers and tributaries to these rivers that occur in Butte County, such as Butte Creek and Big Chico Creek. Critical habitat is also designated for green sturgeon and includes the upper Sacramento River in Butte County, and the Feather River to Oroville Dam (74 FR 52300 October 9, 2009). EFH is also designated for Chinook salmon in Butte County in the Sacramento River.

Impacts on fish from construction-related disturbances include increased sedimentation and turbidity, release of contaminants into surrounding waterbodies, noise disturbance, and change in fish habitat. A change in fish habitat could result from the removal of terrestrial vegetation from streambanks,
removal of riparian trees and aquatic vegetation, or rip-rapping \textsuperscript{57} banks for erosion control. Increases in sedimentation and turbidity have been shown to affect fish physiology, behavior, and habitat. Stress responses are generally higher with increasing turbidity and decreasing particle size. Migrating adult salmonids have been reported to avoid high waterways with silt loads or cease migration when such loads are unavoidable. \textsuperscript{58}

Construction activities may also involve the storage, use or discharge of toxic and other harmful substances near water bodies or in areas that drain to these water bodies. Heavy construction equipment often use petroleum products, such as fuels, lubricants, hydraulic fluids and coolants, all of which may be toxic to fish and other aquatic organisms. An accidental spill or inadvertent discharge of these materials could affect the water quality of the river or water body and thereby affect fish or fish habitat.

\textit{iv. Impact Significance Determination}

The Butte County General Plan 2030 includes goals, policies and actions that would mitigate potential impacts on special-status species. Conservation and Open Space Element Goal 9 and its supporting policies and actions seek to protect identified special-status species. In particular, Policy COS-P9.1 requires the preparation of a biological resources assessment for any proposed project where special-status species or critical habitat may be present, and Policy COS-P9.2 requires that if such species or habitat are found, the project proponent must consult with the appropriate resource agencies and mitigate project impacts. Both policies require that assessment or mitigation requirements of the HCP/NCCP be implemented for development projects within the HCP/NCCP area, upon adoption of the HCP/NCCP. In addition, Action COS-A6.1 directs the County to continue to work with BCAG and the five municipalities to develop and implement the Butte Regional HCP/NCCP, and subsequently update it as necessary. Since the Butte Re-

\textsuperscript{57} Rip-rap banks are composed of rock or other materials that resist erosion by dissipating the energy of flowing water or waves.

Regional HCP/NCCP covers a number of special-status species, implementation and periodic updates to this planning document will help to mitigate impacts on special-status species. There are also a number of General Plan 2030 policies and actions that would preserve and enhance areas that may provide habitat for special-status species, including the following:

- Action COS-A6.1 directs the County to continue to work with BCAG and the five municipalities to develop and implement the Butte Regional HCP/NCCP, and subsequently update it as necessary.

- Policy COS-P7.4 requires that new development mitigate its impacts in habitat areas for protected species through on- or off-site habitat restoration, clustering of development, and/or project design, and through the provisions of the Butte Regional HCP/NCCP within the HCP/NCCP Planning Area.

- Policy COS-P7.5 prohibits development in wetlands or within significant riparian habitats, except within the Butte Regional HCP/NCCP Planning Area where such development is consistent with the conditions of the HCP/NCCP.

- Policy COS-P7.6 requires that new development include setbacks and buffers along riparian corridors and adjacent to habitat for protected species except where permitted in the Butte Regional HCP/NCCP Planning Area and where such development is consistent with the conditions of the HCP/NCCP.

- Policy COS-P7.7 requires the installation of construction barrier fencing around sensitive resources on or adjacent to construction sites.

- Policy COS-P7.8 requires that construction employees operating equipment or engaged in any development-associated activities involving vegetation removal or ground disturbing activities in sensitive resource areas be trained by a qualified biologist and/or botanist who will provide information on the on-site biological resources (sensitive natural communities, special-status plant and wildlife habitats, nests of special-status birds, etc.), avoidance of invasive plant introduction and spread, and the penalties for
not complying with biological mitigation requirements and other State and federal regulations.

- Policy COS-P7.9 requires that a biologist be retained to conduct construction monitoring in and adjacent to all habitats for protected species when construction is taking place near such habitat areas.

- Action COS-A7.2 directs the County to develop a set of guidelines for evaluating project impacts to habitat in locations outside of the approved HCP/NCCP Planning Area, as well as for requiring specific mitigations for impacts that are identified.

- Action COS-A7.3 directs the County to establish a mitigation bank program for impacts to habitats for protected species, such as oak woodlands, riparian woodlands, and wetlands, in locations outside of the approved HCP/NCCP Planning Area, using mitigation fees on new development as a funding mechanisms.

- Policy W-P1.4 protects riparian and fish habitat by requiring that new development where appropriate minimize impervious area, minimize runoff and pollution, and incorporate best management practices.

- Policy W-P5.4 protects riparian and fish habitat by requiring that temporary facilities be installed during construction activities in order to adequately treat stormwater runoff from construction sites.

- Policy W-P6.1 requires that any alteration of natural channels for flood control retain and protect riparian vegetation to the extent possible while still accomplishing the goal of providing flood control.

Environmental protections that may be implemented on a project-by-project basis to address specific wildlife species are provided in Appendix C. The goals, policies and actions proposed in the Conservation and Open Space and Water Elements of General Plan 2030, the additional environmental protections in Appendix C, compliance with the policies and regulations under the ESA, MBTA, CESA, California Fish and Game Code, CWA, and CNPPA described in Section A, and consistency with the Butte Regional HCP/NCCP as required by Action COS-A6.1 would reduce potential im-
pacts to special-status species associated with new development allowed under General Plan 2030 to a less-than-significant level.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community type.

Butte County contains sensitive natural communities, including riparian woodland, oak woodland, streams and wetlands. Riparian vegetation is an important component for special-status fish species habitat and provides shaded riverine aquatic habitat. Shaded riverine aquatic cover directly influences the quality of fish habitat, affecting cover, food, in-stream habitat complexity, streambank stability and temperature regulation. Large woody debris usually originates from riparian trees and provides habitat complexity in aquatic environments, an essential component of fish habitat.

Construction activities could have potential direct and indirect impacts on sensitive natural communities. Construction projects in the county would also have the potential to affect sensitive natural communities by spreading or introducing invasive plant species to currently uninfected areas. Invasive species spread aggressively and crowd out native species, potentially altering the species composition of natural communities. A predominance of invasive species reduces the overall habitat quality for native plants and wildlife.

However, the Conservation and Open Space Element of General Plan 2030 includes a number of goals, policies and actions that would mitigate potential impacts on sensitive natural communities. Goal 7 and its associated policies and actions seek to preserve and enhance areas of significant habitat and sensitive biological communities, including oak woodlands, riparian woodlands, creeks, and wetlands. Many of these policies and actions were highlighted in the discussion about habitat for special-status species in Section D.1.a. In addition to those policies and actions, Policy COS-P7.3 also requires that creeks be maintained in their natural state whenever possible.

In addition, Conservation and Open Space Element Goal COS-8 seeks to maintain and promote native vegetation through a number of policies, includ-
ing Policy COS-P8.4, which avoids introduction or spread of invasive plant species during construction by minimizing surface disturbance, seeding and mulching disturbed areas with certified weed-free native mixes, and using native, noninvasive species in erosion control plantings.

Additionally, as discussed in Section A.1.b, disturbance or alteration of streams, lakes or non-federally protected (non-jurisdictional) wetlands would require a permit, which would include conditions to protect these sensitive natural communities. A Section 1602 streambed alteration agreement would be needed from the DFG prior to initiation of project construction activities within the county that would divert, obstruct or change the natural flow of a river, stream or lake, or that would use material from a streambed. Non-jurisdictional wetlands include wetland features that are not hydrologically connected to navigable waters in rivers and are not under USACE jurisdiction. These wetlands would still be considered waters of the State and would be regulated according to waste discharge requirements that would be issued by the RWQCB.

Implementation of General Plan 2030 goals, policies and actions, together with conditions associated with streambed alteration agreements and waste discharge requirements, would reduce potential impacts on riparian corridors and other sensitive natural communities to a less-than-significant level.

c. Have a substantial adverse effect on federally-protected wetlands as defined by Section 404 of the Clean Water Act, through direct removal, filling, hydrological interruption or other means.

Butte County contains waters of the United States, which include jurisdictional wetlands and other waters. Construction activities could potentially have direct and indirect impacts on waters of the United States.

As discussed in Section D.1.b, General Plan 2030 includes a number of goals, policies and actions that protect sensitive natural communities such as wetlands. In particular Policy COS-P7.5 prohibits development in wetlands,
except within the Butte Regional HCP/NCCP Planning Area where such development is consistent with the conditions of the HCP/NCCP.

In addition, in accordance with the federal Clean Water Act, a formal delineation of waters of the United States would need to be conducted prior to the initiation of construction activities in the county where potentially jurisdictional features are present. The results of the delineation, including a report and map, would be submitted to the Sacramento District of the USACE for verification. If the USACE determines that no waters of the United States are present, a Clean Water Act Section 404 permit would not be required, although waste discharge requirements from the RWQCB might be required, as discussed in Section D.1.b. If the USACE determines that waters of the United States are present, a Section 404 permit from the USACE for placement of fill within waters of the United States and a Section 401 water quality certification from the RWQCB would be required. Placement of fill materials into waters of the United States would require compensation to ensure no net loss of aquatic resources. Required compensation for the loss of degraded habitat could be less than that for undisturbed habitat, but compensation ratios would ultimately be determined by the resource agencies and be stated in the permit conditions.

Implementation of General Plan 2030 goals, policies and actions; conditions associated with Section 404 permits and Section 401 water quality certifications; and additional mitigation protection of wetlands during construction activities would reduce potential impacts on federally-protected wetlands to a less-than-significant level.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species, their wildlife corridors or nursery sites. Butte County contains essential movement corridors for native resident and migratory fish and wildlife species, and development allowed by General Plan 2030 could potentially have adverse impacts on such species. In particular, Butte County’s resident and migratory deer herds may be adversely impacted by such development.
As discussed in Section B.3, a migratory deer herd study was conducted as part of the General Plan 2030 process to update the map of the winter and critical winter migratory deer herd ranges for Butte County. As part of this EIR analysis, impacts to migratory deer habitats were identified by comparing the location of development allowed by General Plan 2030 to the deer herd maps. Development within the county could occur within some of the winter and critical winter ranges and could impede movement of migratory deer herds.

General Plan 2030 includes a Winter Deer Herd Migration Area Overlay, which requires a 20-acre minimum lot size, and a Critical Winter Deer Herd Migration Area Overlay, which requires a 40-acre minimum lot size. These requirements are consistent with management plans created by DFG for the various deer herds in the county. Development may be clustered at smaller lot sizes than these minimums in order to protect the deer herd areas, provided that the non-development areas are protected under permanent conservation easements. In addition, Land Use Policy LU-P1.10 states that the County shall limit development in foothill and mountain areas that are constrained by fire hazards, water supply, migratory deer habitat, or infrastructure.

Several policies and actions of the Conservation and Open Space Element of General Plan 2030 would also help protect deer and other animal migration, including protecting habitat corridors (COS-P7.1) and maintaining buffers along riparian corridors (COS-P7.6). Policy COS-P7.2 would protect migrating deer herds and other migrating animals by allowing and encouraging clustered development with remaining areas being conserved under permanent conservation easements. As trustee agency for the deer herd, DFG will comment on future development projects relative to the on-going health of the migratory deer herd. In addition, Action COS-A10.1 directs coordination with DFG to monitor effects of development on migratory deer herds. Policies of General Plan 2030, together with other federal and State policies and regulations, would reduce potential impacts to deer and other migratory species to a less-than-significant level.
e. Conflict with any local ordinances or policies protecting biological resources.

General Plan 2030 would not conflict with any local policies or ordinances protecting biological resources. The biological resource requirements in the Oak Woodlands Management Plan would remain intact following implementation of the proposed project. Furthermore, General Plan 2030 includes Policy COS-P6.1, which directs the County to coordinate with applicable federal, State, regional, and local agencies on natural resources and habitat planning. Thus, the project would have no impact regarding conflicts with local ordinances or policies protecting biological resources.

The project’s consistency with the Butte Regional HCP/NCCP is discussed separately in Section D.1.f.

f. Conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional or State habitat conservation plan.

As discussed in Section A.3, BCAG is currently preparing the Butte Regional HCP/NCCP, which is scheduled to be complete in 2011. Adoption of the Butte Regional HCP/NCCP would allow projects that qualify as “covered activities” under the Plan to obtain federal and State incidental take authorization for listed species. As part of receiving take authorization, Plan participants could expedite their mitigation and compensation requirements through the Butte Regional HCP/NCCP, which would be consistent with federal and State recommendations and requirements.

General Plan 2030 was developed with input and collaboration from the Butte Regional HCP/NCCP process. In addition, Action COS-A6.1 directs the County to continue to work with BCAG and the five municipalities to develop and implement the Butte Regional HCP/NCCP, and subsequently update it as necessary. Therefore, the project would not conflict with the Butte Regional HCP/NCCP, and no impact would occur.
2. Cumulative Impacts

As discussed above, General Plan 2030 contains extensive goals, policies and actions that mitigate impacts to undeveloped lands that support sensitive biological resources, including special-status species, sensitive natural communities, federally-protected wetlands, and wildlife and fish movement corridors, to a less-than-significant level and that additionally minimize the effects of development on biological resources in general. Development allowed by General Plan 2030 would contribute to the on-going loss of undeveloped lands that support such sensitive biological resources in Butte County. The cumulative loss of habitat and sensitive natural communities in Butte County could potentially contribute to a general decline for the region, and might result in the loss or displacement of wildlife that would have to compete for suitable habitats with existing adjacent populations. Since this potential change would occur as an intrinsic part of the land use changes allowed under General Plan 2030 to accommodate the expected continued growth of population and economic activity in Butte County over the next 20 years, and since development outside Butte County is beyond the County’s ability to regulate or control, the cumulative change may rise to a level of significance and is being treated as a significant and unavoidable impact.

E. Maximum Theoretical Buildout

Under the maximum theoretical buildout of General Plan 2030, there would be significantly more development than under the projected 2030 buildout analyzed in Section D, in terms of both the amount and the extent of development. As a result, impacts on biological resources would be more significant. However, as discussed in Chapter 3, it is unlikely that maximum theoretical buildout would ever occur under General Plan 2030, and an analysis of maximum theoretical buildout is not required by CEQA.
F. Impacts and Mitigation Measures

Impact BIO-1: General Plan 2030 contains extensive goals, policies and actions that mitigate impacts to undeveloped lands that support sensitive biological resources, including special-status species, sensitive natural communities, federally-protected wetlands, and wildlife and fish movement corridors, to a less-than-significant level and that additionally minimize the effects of development on biological resources in general. Development resulting under General Plan 2030 would contribute to the on-going loss of undeveloped lands that support such sensitive biological resources in Butte County. The cumulative loss of habitat and sensitive natural communities in Butte County could potentially contribute to a general decline for the region, and might result in the loss or displacement of wildlife that would have to compete for suitable habitats with existing adjacent populations.

As discussed in Section D.2, this change would occur as an intrinsic part of the land use changes allowed under General Plan 2030 to accommodate the expected continued growth of population and economic activity in Butte County over the next 20 years, and development outside Butte County would be beyond the County’s ability to regulate or control. Therefore, there is no feasible mitigation available to reduce this impact to a less-than-significant level, and the impact is considered significant and unavoidable.
This chapter discusses cultural resources in Butte County and evaluates the potential cultural resource impacts resulting from the spatial location of development that would be allowed by General Plan 2030. The following evaluation assesses historical, archaeological and paleontological resources, as well as potential impacts associated with the disturbance of human remains.

A. Regulatory Framework

This section summarizes key federal and State regulations and policies that apply to historical, archaeological and paleontological resources and human remains.

1. National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA) is the most influential federal law dealing with historic preservation. Under the NHPA, Congress has enacted numerous statutes that affect historic properties. One of the most important provisions of the NHPA is the establishment of the National Register of Historic Places (NRHP), the official designation of historical resources. Districts, sites, buildings, structures and objects are eligible for listing in the Register. The NRHP is administered by the National Park Service. To be eligible for the NRHP, a property must be significant under criterion A (history), B (persons), or C (design/construction); possess integrity; and ordinarily be 50 years of age or more.

Listing in the NRHP does not entail specific protection or assistance for a property, but it does guarantee recognition in planning for federal or federally-assisted projects (see Section 106), eligibility for federal tax benefits and qualification for federal historic preservation assistance. The NRHP is influential beyond its statutory role because it achieves uniform standards of

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documentation and evaluation. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.²

2. California Register of Historic Resources
The California Register of Historical Resources (CRHR) is restricted to properties that are to be protected from substantial adverse change (Public Resources Code Section 5024.1). A historical resource may be listed in the CRHR if it meets any of the following criteria:

♦ It is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.

♦ It is associated with the lives of persons important in California’s past.

♦ It 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 value.

♦ It has yielded or is likely to yield information important in prehistory or history.

The CRHR includes properties that are listed or have been formally determined to be eligible for listing in the NRHP, State Historical Landmarks and eligible Points of Historical Interest. Other resources require nomination for inclusion in the Register. These may include resources contributing to the significance of a local historic district, individual historical resources, historical resources identified in historic resource surveys conducted in accordance with State Historic Preservation Office (SHPO) procedures, historic resources or districts designated under a local ordinance consistent with State Historic Resources Commission procedures, and local landmarks or historic properties designated under local ordinance.³

² 2009 CEQA Guidelines. 15064.5(c), page 126.
3. California Public Resources Code

Section 5097 of the Public Resources Code specifies the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal land. The disposition of Native American burial falls within the jurisdiction of the California Native American Heritage Commission (NAHC). Section 5097.5 of the Code states the following:

No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

As used in this section, “public lands” means lands owned by, or under the jurisdiction of, the State or any city, county, district, authority or public corporation, or any agency thereof. Consequently, Butte County is required to comply with Public Resource Code Section 5097.5 for its activities on publicly-owned land.4


Section 7052 of the California State Health and Safety Code states that the disturbance of Native American cemeteries is a felony. Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner determines whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the NAHC.5


5. **California State Senate Bill 18**

Senate Bill (SB) 18, which went into effect January 1, 2005, requires local governments (cities and counties) to consult with Native American tribes in order to better protect traditional tribal culture through local land use planning.\(^6\) SB 18 provides California Native American tribes an opportunity to participate in local land use decisions in the early stages of planning before individual site-specific, project-level land use designations are made by a local government.

Butte County invited all Native American Tribes listed by the Native American Heritage Commission (NAHC) to consult on General Plan 2030, as required by SB 18. The NAHC identified six tribes in Butte County for consultation under SB 18:

- Berry Creek Rancheria of Maidu Indians
- Enterprise Rancheria of Maidu Indians
- Greenville Rancheria of Maidu Indians
- Maidu Nation
- Mechoopda Indian Tribe of Chico Rancheria
- Mooretown Rancheria of Maidu Indians.

In addition to inviting these Tribes to consult, the County provided periodic Tribal Update Meetings and written updates throughout the planning process. These meetings and updates described the status, progress, and products of the General Plan 2030 process to tribes listed for consultation.

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\(^6\) SB 18 is codified by California Government Code (GC) Section 65352.4 and amends GC Sections 65040.2, 65092, 65351 and 65560, while adding GC Sections 65352.3, 65352.4 and 65562.5.
B. Existing Conditions

This section discusses the existing conditions pertaining to cultural resources within Butte County.

1. Archaeological Resources

To prepare this report, the Northeast Information Center (NEIC) of the California Historical Resources Information System at California State University, Chico, conducted a general countywide cultural resources record search. The NEIC is part of the California Historical Resources Information System, which maintains an inventory of the State’s historical resources. Specifically, the NEIC keeps records of known archaeological and architectural sites and studies on US Geological Survey (USGS) 7.5-minute topographic quadrangle maps. All of the USGS maps covering Butte County were consulted. This information provided the basis for the archaeological-sensitivity assessment of Butte County, discussed later in this report. Information about cultural resources is variable and ranges from reported locations with no attached map or poorly drawn maps, which were prevalent through the 1970s, to precisely recorded site information with associated detailed mapping. Early methods for identifying, recording, and evaluating sites would not meet current standards for identifying and evaluating cultural resources. Although the NEIC inventory provides the best available information about archaeological sites, there are likely many undiscovered cultural resources in Butte County.

Of the 2,982 archaeological sites recorded in Butte County, 1,519 sites are either prehistoric archaeological resources or include a prehistoric archaeological component. There are 1,552 sites that are historic period sites or contain a historical archaeological component. According to the California Office of Historic Preservation, a total of 129 archaeological sites are listed on, or have been formally recommended eligible for, listing on the National Register of Historic Places, and therefore by default on the California Register of Historical Resources. Of these, 98 are prehistoric archaeological sites, 25 are historic period archaeological sites, and six are archaeological sites that contain both prehistoric and historic period components.
a. Prehistoric Archaeological Resources

The Native Americans were the first inhabitants of the Butte County area. The county included the territories of four groups of Native American peoples: the Maidu (mountain Maidu), the Nisenan (southern Maidu), the Konkow (northwestern Maidu), and the Yana. Many Native Americans continue to reside in the area. The northern county was Maidu territory. They inhabited the mountain valleys from Honey Lake to Lassen Peak, generally at altitudes higher than 4,000 feet. The Nisenan territory was generally bounded by the Sacramento River to the west, the lower Feather River to the south, and the crest of the Sierra Nevada mountains to the east. The Konkow people inhabited the Feather River area, from west of Richbar almost to the Sutter Buttes, and the Sacramento River area from Butte City in the south to Butte Meadows in the north. The Yana people occupied a wide range of the county, from the edge of the Sacramento Valley to the crests of the Cascade and Sierra Nevada mountains. The last member of the Yana tribe was a man called Ishi. Ishi was also the last Native American in northern California to live the majority of his life outside of European American influence. Ishi and his ancestors occupied the foothill region near Mount Lassen, which is modern-day Butte County.

Previous studies in the general region provide reasonable expectations for the range of archaeological property types likely to occur in Butte County. Prehistoric site types include habitation sites, limited occupation sites, hunting/processing camps, lithic reduction stations, milling stations, quarries,

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8 A location used for the manufacture of stone tools.
rock-art sites, bedrock milling features,\(^9\) and burial locations. Sites may fall into more than one category. For example, habitation sites may be associated with rock art. Therefore, sites may be classified as more than one site type. The most common prehistoric sites found in the Butte County area are temporary occupation sites.

Habitation sites are locations of long-term occupation. These sites were typically located near streams and springs, which are abundant in Butte County. Habitation sites are characterized by midden deposits\(^10\) and a variety of artifacts, such as flaked-stone tools, ground-stone implements and fire-affected rock.

Temporary camps are distinguished from habitation sites by the absence or limited development of midden deposits. Archaeological deposits at temporary camps are typically shallow or restricted to the surface and are limited principally to ground-stone tools, flaked-stone tools, and debitage,\(^11\) in approximate descending order of frequency.

Lithic scatters are collections of flaked- or ground-stone debris, including tools and debitage that relate to post-quarry reduction and tool manufacturing efforts. They are perceived primarily as daily or overnight task-oriented camps where a limited range of activities was conducted.

The overall prehistoric archaeological sensitivity of Butte County is generally considered high, particularly in areas near water sources or on terraces along watercourses. In particular, the Sacramento River and Feather River watersheds within the Sierra Nevada foothills possess river terraces that are rich in archaeological resources. In the area of Oroville where the forks of the

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\(^9\) Rock outcrops with human-made shallow slicks or circular depressions, often appearing in clusters used for the purpose of grinding or pulverizing food resources.

\(^10\) A mound or deposit containing shell, bone, and other domestic refuse that indicates the site of human settlement.

\(^11\) The sharp-edged debris generated during the manufacture of a stone tool.
 Feather River converge, the archaeological site density is one of the highest in California. Between 2005 and 2006 alone, at least 500 sites were recorded in this area and reported to the NEIC.

In general, the lands on the margins of the Sacramento River and other major waterways are rich in prehistoric archaeological resources. Prehistoric archaeological sites often are located along riverbanks in the Sacramento Valley, although they are usually found on natural rises that protected the inhabitants from frequent floods. Sites along the Sacramento River and other major drainages in Butte County do exist, and additional prehistoric deposits may be buried in similar locations, in natural buried contexts such as under alluvial deposits, and in cultural buried contexts such as below constructed levees, or mixed in as a portion of levee fill material.

b. Historic-Period Archaeological Resources

Historic site types include old transportation corridors and alignments, and remnants of activities associated with historic homesteading, ranching and agriculture, mining and commerce. The overall historic archaeological sensitivity of Butte County area is generally considered moderately high, especially in those areas where historic records indicate transportation routes, agricultural settlements, and mining.

2. Historical Resources

Spaniards explored parts of the area now known as Butte County as early as 1808, in search of mission sites. Hunters and trappers, such as Jedediah Strong Smith and a group of Hudson’s Bay Company trappers, explored present-day Butte County prior to the California gold rush of 1848. At that time, the region was outside the mainstream of both Mexican and American settlement and was scattered with just a handful of ranches on Mexican land grants.\(^\text{12}\)

The discovery of gold in 1848 brought an influx of gold seekers to the region. Thousands of miners descended upon the area and set up transitory encampments, such as Bidwell Bar, Long Bar, and Hamilton on the Feather River, and others along Butte Creek, where some gold was discovered. Mining camps established during the Gold Rush gradually developed into trading centers for mining and then for lumbering and agricultural goods.

In the latter part of the 19th century, the Gold Rush waned and the population steadied. The county’s economic emphasis shifted back towards agriculture, with many lucrative crops including rice, almonds, walnuts, and peaches. In 1850, Butte County was incorporated into the State of California as one of the original 27 counties. In 1856, the county’s boundaries were redrawn to their current configuration. The county’s first municipality, the City of Chico, was incorporated in 1860. Biggs was incorporated in 1903, Gridley in 1905, Oroville in 1906, and Paradise in 1979.

Historic cultural resources generally include buildings, roads, trails, bridges, canals and railroads usually associated with the time period beginning with the first Euro-American contact. Because Euro-American settlement of Butte County dates to the 1840s, the county is rich in historic cultural resources. In general, historic resources in the county are expected to occur in concentrations: adjacent to transportation corridors (historic highways, railroads, navigable waterways); on historic ranches; in areas of historic rock, soil, mineral and timber extraction; and within historic neighborhoods and business districts.

a. Historic Properties in State Database
The Historic Property Data File Historic Resources Inventory (HRI), which is maintained by the SHPO, identifies properties that have been recorded and whether those properties are considered eligible or ineligible for listing in the NRHP. The listing for Butte County, including the incorporated municipalities, indicates that 846 properties have been inventoried at some level. This includes several hundred properties that are listed or appear to meet the criteria for listing in the National Register. In general, listing a property in the
NRHP involves submission of a formal nomination form that requires concurrence from the SHPO, State Historical Resources Commission, and the Keeper of the National Register. Properties that are evaluated and found eligible for listing under one or more of the NRHP criteria, but are never nominated, are afforded the same protections for federally funded projects as listed properties. As noted previously, properties listed or found eligible for listing in the NRHP are also automatically eligible for the CRHR. The HRI also includes buildings that have been identified as historically significant by local government agencies. The numbers and types of properties in Butte County are discussed briefly below.

i. Oroville Area
Surveys have identified 184 buildings and structures in the Oroville area that meet the criteria for listing in the NRHP and CRHR or that have local designation. Among these are buildings that comprise the Berkeley Olive Association Historic District, located in the vicinity of Coal Canyon Road and Rocky Lane, which was listed in the National Register in 2000.

ii. Chico Area
Chico includes some of the most important cultural resources in the entire county. Surveys have identified 511 buildings and structures in the Chico area that have been surveyed, evaluated and found to meet the criteria for listing in the NRHP and CRHR or that have local designation. Of these, 124 structures and buildings are listed or determined eligible for listing in the NRHP or CRHR.

iii. Paradise Area
The HRI contains 23 buildings and structures in and around Paradise that have been surveyed, evaluated and found to meet the criteria for listing in the NRHP and CRHR or that have a local designation. Among these, the Honey Run Covered Bridge near Paradise and the Centerville Schoolhouse northeast of Chico have been nominated and are listed in the National Register.
iv. **Gridley Area**
The Gridley area includes 42 properties that have been surveyed, evaluated and found to meet the criteria for listing in the NRHP and CRHR or that have local designation.

v. **Biggs Area**
Ten buildings and structures in the vicinity of Biggs have been surveyed, evaluated and found to meet the criteria for listing in the NRHP and CRHR or have local designation. None have been formally nominated and listed in the National Register.

vi. **Other Areas**
Throughout the rest of Butte County, 76 buildings and structures have been surveyed, evaluated and found to meet the criteria for listing in the NRHP and CRHR or have local designation. Of these, eight have been formally nominated and listed in the NRHP.

b. **California State Historical Landmarks**
The State of California officially began commemorating sites important to the history of the State in 1932. Originally, the California Historical Landmarks program emphasized well-known places and events including the missions, early settlements and the Gold Rush. Over the years, the program has been refined to include only those sites that are of statewide historical importance and must be the first, last, only, or most significant of a type in a large geographical area. Nine resources in Butte County have been designated as California Historical Landmarks.

c. **California Points of Historical Interest**
California Points of Historical Interest are sites, buildings, features or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific, technical, religious, experimental or other value. No historical resource may be designated as both a Landmark and a Point of Historical Interest. If a Point of Historical Interest is subsequently granted status as a Landmark, the Point designation
will be retired. To be eligible for designation as a Point of Historical Interest, a resource must meet at least one of the following criteria:

- The first, last, only, or most significant of its type in the state or within the local geographic region (city or county).
- Association with an individual or group having a profound influence on the history of the local area.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction.
- Is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer or master builder.

There are 20 California Points of Historical Interest in Butte County including the following resources in unincorporated Butte County:

- Honey Run Covered Bridge, near Paradise
- Manzanita School, east of Gridley
- Centerville Schoolhouse, northeast of Chico
- Old Chinese Cemetery, vicinity of Oroville
- Townsite of Cherokee and Spring Valley Mine, near Oroville
- Long’s Bar, near Oroville
- Oroville Cemetery, vicinity of Oroville
- Jewish Cemetery, vicinity of Oroville
- Site of 14-Mile House, Toll Station and Wayside Inn, vicinity of Chico
- Richardson Springs Resort, northeast of Chico
- Odd Fellows Home (Bella Vista Hotel) Site, vicinity of Thermalito
- The Fagan House, east of Gridley

C. Standards of Significance

General Plan 2030 and the ALUCP override would have a significant cultural resource impact if they would:

- Cause a substantial adverse change in the significance of a historical resource.
♦ Cause a substantial adverse change in the significance of an archaeological resource.
♦ Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
♦ Disturb any human remains, including those interred outside of formal cemeteries.

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative cultural resource impacts that could occur as a result of implementation of the ALUCP override would have no cultural resource impact in Butte County, and is not discussed further in this section.

1. Project Impacts

a. Cause a substantial adverse change in the significance of a historical resource.

Section 15064.5 (b)(1) of the CEQA Guidelines defines a substantial adverse change in the significance of a historic resource to be the “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.”

Development allowed by General Plan 2030 could cause a substantial adverse change in the significance of a historical resource. Specifically, direct impacts could occur if buildings determined to be historic were demolished or significantly altered as a result of development allowed by General Plan 2030.

However, General Plan 2030 includes goals, policies and actions that would address potential historic resource impacts and propose mitigation, if applicable. Conservation and Open Space Element Goal COS-15 and its associated policies and actions address potential impacts of new development on cultural
resources. Specifically, Policy COS-P15.1 requires examination by a qualified consulting archaeologist or historian and appropriate protection and preservation when significant historic resources are found during construction. Policy COS-P15.3 requires a discretionary review of demolition permit applications on potentially important historic sites. In addition, Action COS-A15.1 directs the County to create guidelines for evaluating and mitigating project impacts to cultural resources, in consultation with the NEIC.

General Plan 2030 also seeks to preserve important historical resources through Conservation and Open Space Element Goal COS-14 and its associated policies and actions. In particular, Policy COS-P14.2 requires that evaluations of cultural resources be conducted as part of the review process under CEQA and the National Environmental Protection Act (NEPA). Policy COS-P14.3 requires consultation with the NEIC and appropriate historic and preservation professionals when considering re-use of historic sites. In addition, Actions COS-A14.1 through COS-A14.3 direct the County to seek funding for and conduct studies that would define the types and categories of historic and cultural resources in the county, and to inventory known cultural resources.

Together, the goals, policies and actions in General Plan 2030 would reduce potential historical resource impacts to a less-than-significant level.

b. Cause a substantial adverse change in the significance of an archaeological resource.

Development allowed by General Plan 2030 could result in direct or indirect impacts to archaeological resources. Construction activities, such as grading and excavation, may result in the accidental destruction or disturbance of archaeological sites.

However, General Plan 2030 includes goals, policies and actions that would mitigate potential archaeological resource impacts. As discussed in Section D.1.a, Conservation and Open Space Element Goal COS-15 and its associated policies and actions address the potential adverse impacts of new development.
on cultural resources. In particular, Policy COS-P15.1 requires examination and appropriate protection and preservation of prehistoric archaeological artifacts found during construction, and Action COS-A15.1 directs the County to create guidelines for evaluating and mitigating impacts to surface and subsurface cultural resources. Furthermore, Policy COS-P15.2 requires that any archaeological resources on a project site be either preserved in their sites or adequately documented as a condition of removal, and directs that, when a project has sufficient flexibility, avoidance and preservation of the resource be the primary mitigation measure.

In addition, as discussed in Section D.1.a, Conservation and Open Space Element Goal COS-14 and its associated policies and actions aim to preserve important archaeological resources. In particular, Policy COS-P14.2 requires that evaluations of surface and subsurface cultural resources be conducted as part of the review process under CEQA and NEPA, and Actions COS-A14.1 through COS-A14.3 direct the County to seek funding for and conduct studies that would define the types of cultural resources in the county and inventory known cultural resources.

Together, the goals, policies, and actions in General Plan 2030 would reduce potential archaeological resource impacts to a less-than-significant level.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Future development allowed by General Plan 2030 may result in impacts to paleontological resources or unique geological features. Ground-disturbing activities in sensitive areas may cause damage to or destruction of paleontological resources. Additionally, development of previous undeveloped areas may attract people and result in illicit collection of fossils, prospecting, or damage to unique geological features. If these resources were significant, this would be considered a significant impact.

However, General Plan 2030 includes goals, policies and actions that would mitigate potential paleontological resource impacts. As discussed in Sections
D.1.a and D.1.b, Conservation and Open Space Element Goal COS-15 and its associated policies and actions address the potential adverse impacts of new development on cultural resources. In particular, Policy COS-P15.1 requires examination and appropriate protection and preservation of archaeological artifacts when found during construction, and Action COS-A15.1 directs the County to create guidelines for evaluating and mitigating impacts to surface and subsurface cultural resources. Furthermore, Policy COS-P15.2 requires that any paleontological resources on a project site be either preserved in their sites or adequately documented as a condition of removal, and directs that, when a project has sufficient flexibility, avoidance, and preservation of the resource be the primary mitigation measure.

In addition, as discussed in Sections D.1.a and D.1.b, Conservation and Open Space Element Goal COS-14 and its associated policies and actions aim to preserve important cultural resources. In particular, Policy COS-P14.2 requires that evaluations of surface and subsurface cultural resources be conducted as part of the review process under CEQA and NEPA, and Actions COS-A14.1 through COS-A14.3 direct the County to seek funding for and conduct studies that would define the types of cultural resources in the county and inventory known cultural resources.

Together, the goals, policies, and actions in General Plan 2030 would reduce potential paleontological resource impacts to a less-than-significant level.

d. Disturb any human remains, including those interred outside of formal cemeteries.

Although General Plan 2030 would not affect any formal cemeteries or known burials outside of formal cemeteries, future development could disturb unknown human remains.

However, General Plan 2030 includes goals, policies and actions that would mitigate potential impacts associated with the disturbance of human remains. Specifically, Conservation and Open Space Element Policy COS-P16.3 requires that human remains discovered during implementation of public and
private projects be treated with dignity and respect, and that treatment of those remains fully complies with the federal Native American Graves Protection and Repatriation Act and other appropriate laws. Policy COS-P16.4 requires that, if human remains are located during any ground disturbing activity, work must stop until the County Coroner has been contacted. If the human remains are determined to be of Native American origin, the NAHC and the most likely descendant would need to be consulted before resuming work.

Together, the goals, policies and actions in General Plan 2030 would reduce potential impacts associated with the disturbance of human remains to a less-than-significant level.

2. Cumulative Impacts
In general, cumulative impacts to cultural, historical, or paleontological resource sites would occur when a series of actions leads to the loss of a substantial type of site, building or resource. For example, while the loss of a single historic building may not be significant to the character of a neighborhood or streetscape, continued loss of such resources on a project-by-project basis could constitute a significant cumulative effect. This is most obvious in historic districts, where destruction or alteration of a percentage of the contributing elements may lead to a loss of integrity of the district overall. Changes to the setting or character of an area, for example, by adding modern structures on all sides of a historically significant building, thus altering the aesthetics of the streetscape, would create a significant impact. Destruction or relocation of historic buildings would also significantly impact the setting.

However, development in the Butte County region would be subject to federal and State laws protecting cultural resources. The goals, polices and actions of General Plan 2030 that protect historical, archaeological and paleontological resources, and human remains, in combination with these other regulations, would result in a less-than-significant cumulative impact to cultural resources.
E. Maximum Theoretical Buildout

The maximum theoretical buildout allowed under General Plan 2030 would include significantly more development than the projected 2030 buildout analyzed in Section D in terms of both the amount and the extent of development. Therefore, the potential for impacts to cultural resources would increase. However, as discussed in Chapter 3, it is extremely unlikely that maximum theoretical buildout would ever occur under General Plan 2030. Therefore, an analysis of maximum theoretical buildout is not required by CEQA.

F. Impacts and Mitigation Measures

Since there are no significant impacts related to cultural resources as a result of General Plan 2030, no mitigation measures are required.
This chapter discusses geology, soils, and mineral resources in Butte County and evaluates potential area-wide geologic hazards and regional seismic characteristics that are relevant to development in Butte County. This chapter includes evaluations of the impacts resulting from the spatial location of development that would be allowed by General Plan 2030 with regard to these potential hazards and resources, including liquefaction, ground shaking, ground rupture, and landslides.

A. Regulatory Framework

This section summarizes key State and local policies, programs, and regulations that apply to the geology, soils, and mineral resources of Butte County.

1. State Policies and Regulations
   a. Alquist-Priolo Earthquake Fault Zoning Act
      The Alquist-Priolo Earthquake Fault Zoning Act was passed by the California Legislature in 1972 to mitigate the hazard of surface faulting to structures. The Act’s main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. According to the Act, local agencies must regulate most development in fault zones established by the State Geologist. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, the city or county with jurisdiction must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.¹

   b. California Seismic Hazards Mapping Act
      The California Seismic Hazards Mapping Act of 1990 (California Public Resources Code Sections 2690 through 2699.6) addresses seismic hazards other than surface fault rupture, such as liquefaction and seismically-induced land-  

slides. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into project plans to reduce hazards associated with seismicity and unstable soils.2

The International Building Code was developed by the International Conference of Building Officials to provide a set of consistent standards for building structures. The Code requires strict building standards for essential facilities and structures on soft soil where shaking intensity from a potential earthquake is high.

The California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code, is based on the 2006 International Building Code and combines three types of building standards from three different origins:

♦ Building standards that have been adopted by State agencies without change from building standards contained in the International Building Code.

♦ Building standards that have been adopted and adapted from the national model code standards to meet California conditions.

♦ Building standards, authorized by the California legislature, that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns.

e. California Water Code, Part 6, Chapter 4.5, Section 13290
CEQA requires that an EIR consider whether soils in a project area would be capable of supporting the use of septic systems. Part 6, Chapter 4.5, of the

California Water Code requires owners and operators of new, rehabilitated or leaking on-site sewage treatment systems to adopt minimum operating requirements related to siting, construction, and performance.

f. Regional Water Quality Control Board Basin Plan
The Central Valley Regional Water Quality Control Board (RWQCB) has adopted policies and requirements pertaining to on-site sewage disposal systems, commonly referred to as the Basin Plan. The on-site sewage disposal systems element of the Basin Plan sets forth various objectives, guidelines, general principles, and recommendations for the use of on-site sewage disposal systems. Mandatory requirements for the siting and design of on-site sewage disposal systems are established in the Basin Plan. Included are specific criteria related to separation distances from groundwater, setbacks to water features, soil conditions, percolation rates, special design systems, and leachfield replacement area. The Basin Plan requirements are applied by the RWQCB Redding Office only to the creation of new parcels, which is termed “Land Development.” On-site system requirements for existing parcels are established in Chapter 19 of the Butte County Code.

g. Surface Mining and Reclamation Act
The California Surface Mining and Reclamation Act of 1975 (SMARA) was enacted in response to land use conflicts between urban growth and essential mineral production. SMARA requires the State Geologist to classify land according to the presence or absence of significant mineral deposits. Local governments must consider this information before land with important mineral deposits is committed to land uses incompatible with mining.

SMARA provides for the evaluation of an area’s mineral resources using a system of Mineral Resource Zone (MRZ) classifications that reflect the known or inferred presence and significance of a given mineral resource.

♦ MRZ-1. Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
♦ MRZ-2. Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.

♦ MRZ-3. Areas containing mineral deposits, the significance of which cannot be evaluated from available data.

♦ MRZ-4. Areas where available information is inadequate for assignment into any other MRZ.

2. Local Programs and Regulations
   a. Butte County Grading Ordinance
      Butte County’s Grading Ordinance, most recently amended on December 8, 2009, is designed to protect the natural character and resources of Butte County from the potentially adverse impacts of grading and construction. The Ordinance requires that a permit be obtained before any grading activities of over 1,000 cubic yards are performed at locations east of Highways 99, 149 and 70, where steep topography can lead to adverse impacts from grading. The grading permit requires a plan for erosion and sedimentation control and details of planned drainage structures. Permit issuance is subject to inspection by County staff during construction. Grading projects greater than 50 and less than 1,000 cubic yards that do not require a building permit or other County-issued permit, and that are not part of an agricultural operation, must submit sediment and erosion controls, a Determination of Exemption application, and associated fee to the Butte County Department of Public Works.

   b. Butte County Wastewater Ordinance
      The Butte County Division of Environmental Health is responsible for permitting and inspection of on-site wastewater systems. Butte County’s Wastewater Ordinance regulates individual on-site wastewater treatment and disposal systems within unincorporated areas of the county.

      To help address failing wastewater systems, and to improve the practices and requirements for new construction, the County is in the process of updating its On-Site Wastewater Ordinance. The proposed Ordinance would update and replace existing regulations in order to be more 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 dispersal. In particular, the proposed Ordinance would establish minimum requirements for soil suitability in the locations of proposed wastewater systems. It would also provide a broader range of treatment and dispersal technologies to overcome soil and groundwater constraints. The updated Ordinance has been developed and is currently undergoing public and environmental review. It would become effective when and if adopted by the County Board of Supervisors.

c. Soil Conservation
The Butte County Resource Conservation District (RCD) was created in 2003 after passage of a 2002 countywide ballot measure. The RCD is a special district that is governed by a locally-appointed, independent board of directors. Erosion control management is one of the main focus areas of the Butte County RCD. The RCD also provides conservation planning assistance to landowners in cooperation with the federal Natural Resources Conservation Service (NRCS).

The County Agricultural Commissioner also advises landowners on soil conservation issues. In addition, the federal Agricultural Stabilization and Conservation Services (ASCS) and the University of California Extension Services have established erosion-reduction programs for planting trees for reforestation, planting grass for erosion stabilization, and developing small reservoirs to divert livestock away from natural riparian corridors. However, these projects are not mandatory, so the responsibility to protect and restore soil resources falls on the individual land owner.

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B. Existing Conditions

This section discusses the existing conditions pertaining to geology, soils, and mineral resources within Butte County.

1. Regional Geology

Butte County is made up of three distinct geologic areas: the valley region, the foothill region, and the mountain region.

The valley region covers approximately 45 percent of the county’s land area and consists predominantly of marine sedimentary rocks and continentally-derived sediments underlain by granitic and metamorphic bedrock.

The foothill region, which transitions from the valley to the mountain ranges, comprises the area between elevations 200 and 4,100 feet above mean sea level. The geology of the foothill region is characterized by Tertiary sediments in the north and west, and older Mesozoic-Paleozoic rocks in the east and the south.

The mountain region forms the eastern portion of Butte County, including parts of the Sierra Nevada and Cascade Mountain Ranges. The geology of the Mountain Region consists mainly of plutonic, volcanic, and metamorphic rocks of Paleozoic and Mesozoic age.

2. Geologic Hazards

a. Surface Fault Rupture

California is a seismically active region; seismic activity is concentrated in tectonically active regions, such as the Pacific Coast, the Sierra Nevada Range, and the Cascade Range. The active tectonism in these regions is due to movements of the earth’s tectonic plates and resulting volcanism.

The California Geological Survey has established the following fault classifications based on surface fault rupture hazard:
Faults that have shown movement within the past 200 years are historic faults.

 Faults with movement in the past 11,000 years are Holocene faults.

 Faults that have shown movement within the past 1.6 million years are Late Quaternary faults.

 Faults that have shown no movement within the past 1.6 million years are considered inactive. Most of the faults in the Sierra Nevada foothills and Cascade Range, including dozens in Butte County, are inactive.

In accordance with the Alquist-Priolo Earthquake Fault Zoning Act of 1972 (A-P EFZ), only faults with evidence of historic or Holocene surface fault rupture are considered “active” earthquake faults and zoned on the A-P EFZ maps. Faults with evidence of surface fault rupture within the past 1.6 million years are considered potentially or conditionally active.

The A-P EFZ maps show faults considered active by the California Geological Survey. The only fault in Butte County considered active and subject to the A-P EFZ is the Cleveland Hills fault, which is shown on the Bangor 7.5 Minute Quadrangle Earthquake Fault Zones Map (1977). The fault runs in a nearly north-south orientation directly south of Lake Oroville and approximately 4 miles east-southeast of Oroville. This fault last ruptured in 1975. Figure 4.6-1 maps the Cleveland Hills fault, as well as inactive faults in Butte County. Some geologists consider the Big Bend fault zone to be potentially active, but it is not subject to the requirements of the Alquist-Priolo Earthquake Fault Zoning Act.

b. Seismically Induced Ground Shaking
Fault activity has the potential to result in ground shaking, which can be of varying intensity depending on the intensity of earthquake activity, proximity to that activity and local soils and geology.
Cleveland Hills Fault, Active

Cleveland Hills Fault, Concealed

Cleveland Hills Fault, Inferred

Big Bend Fault, Potentially Active

Big Bend Fault, Inactive

Unnamed Fault, Inactive

Fault Lines

Source: Butte County GIS, 2009.
The strength of an earthquake may be expressed as its magnitude, commonly measured on the Richter scale, and its intensity, as ranked on the Modified Mercalli Intensity Scale. The Richter scale magnitude is a measure of the energy released at the focus of the earthquake. The Cleveland Hills fault earthquake of 1975 was measured at a Richter magnitude of 5.7. The Modified Mercalli Scale measures the intensity on a scale of I to XII of ground shaking as determined from observations of an earthquake’s effect on people, structures and the earth’s surface. The Cleveland Hill fault earthquake of 1975 had an estimated Mercalli Scale rating of up to VII in Gridley and Oroville, meaning that it was felt by all and damage was minor to moderate.

The area of Butte County most likely to be subject to strong ground shaking is the area closest to the Cleveland Hills Fault. However, the westernmost portion of the county could also be subject to ground shaking from active earthquake faults within the Coast Ranges to the west, including the San Andreas, Maacama, and Bartlett Springs Faults and others. Shaking intensities at particular locations within the county would depend upon distance from the epicenter, the magnitude of the earthquake, and the properties of the underlying geology.

According to the California Geological Survey’s Probabilistic Seismic Hazard Assessment Program, Butte County is considered to be within an area that is predicted to have a 10 percent probability that a seismic event would produce horizontal ground shaking of 10 to 20 percent within a 50-year period. This level of ground shaking correlates to a Modified Mercalli intensity of V to VII, light to strong. As a result of these factors the California Geological Survey has defined the entire county as a seismic hazard zone.

c. Liquefaction
Liquefaction is a process in which uniform, clean, loose, fine sandy, and silty sediments below the water table temporarily lose strength during an earthquake and behave as a viscous liquid rather than a solid. Liquefaction is restricted to certain geologic and hydrologic environments, primarily recently deposited sand and silt in areas with high groundwater levels.
Liquefaction can cause the soil beneath a structure to lose strength, which may result in the loss of foundation-bearing capacity. This loss of strength commonly causes the structure to settle or tip. Loss of bearing strength can also cause light buildings with basements, buried tanks, and foundation piles to rise buoyantly through the liquefied soil.

Areas of liquefiable soil can be found on the valley floor, especially near the Sacramento and Feather Rivers and minor tributaries, including tributaries that are no longer active. Limited areas of liquefiable soil can be found in the foothill and mountain regions, but are generally limited to drainages where sandy and silty sediments have accumulated.

d. Landslides
The eastern portion of Butte County includes rolling foothills, mountainous peaks and deep stream-cut valleys. The steep slopes associated with this terrain can become saturated and lose strength, causing slope instability and landslides. Other natural causes of landslides include weak rock, inclined planes of weakness, undercutting by streams and waves, intense rainfall, vegetation removal by fire, and earthquakes. Slope instability can be exacerbated through human activities such as improper road and/or building design, excavation of the top of a slope or excess loading of the top of a slope, vegetation removal, mining, and human-introduced water sources, such as lawn watering, leachfields, leaking stormdrains, and water lines. Landslide potential for different areas of Butte County is shown in Figure 4.6-2.

Areas of greatest slope instability include excessively steep slopes, locations of past landslides, hillsides where clay and silt-rich soils or weathered rock absorb water, and areas of weak or stratified rock with bedding or foliation parallel to surface slopes. In addition, slope failure may occur where faults have fractured rock and along the base of slopes or cliffs where supporting material has been removed by stream erosion, flowing water, or human activities.
Source: Butte County GIS, 2009.
e. Land Subsidence

Land subsidence is the sinking of a large area of ground surface with little or no horizontal movement. Subsidence areas typically occur where groundwater or natural gas is extracted. To date, there have been no documented incidents of subsidence in Butte County. However, it remains a potential hazard for the portions of Butte County that are in the Sacramento Valley, particularly if an extended drought were to necessitate large groundwater drawdowns.

f. Expansive Soils

Expansive soils shrink and swell with changes in moisture content as the clay minerals in these soils expand and contract. Expansive soils contain clay minerals that greatly increase in volume when they absorb water and shrink when they dry. When light buildings such as houses and light commercial buildings are placed on expansive soils, foundations may rise each wet season and fall each dry season. Movements may cause foundations to crack, various structural portions of buildings to be distorted, and doors and windows to warp so that they do not function properly. Utilities may also be affected. Roadways, pavements, and other flat improvements are also highly susceptible to damage from expansive soils.

Butte County uses the 2007 California Building Code to regulate development on or near expansive soils. Expansive soils are undesirable for use as engineered fill or sub-grade directly underneath foundations or pavements, and must be replaced with non-expansive engineered fill or require treatment to mitigate the impact of their expansion potential.

Expansive soils are generally found in basin deposits in the low-lying portions of the county near the Sacramento and Feather Rivers as well as localized areas elsewhere in the county. Expansive soil potential in Butte County based on the soil type’s plasticity index is shown in Figure 4.6-3. The plasticity index is a primary indicator of expansive soils potential, and is one of the four criteria defining expansive soils in the 2007 California Building Code.
EXPANSIVE SOIL POTENTIAL

FIGURE 4.6-3

Low
Moderate
High

Airports
Greenline
Major Roads
Sphere of Influence
City/Town Limits
County Boundary

Sources: Butte County GIS, 2009; Questa 2007.
3. Soil Erosion
Erosion is a two-step process by which soils and rocks are broken down or fragmented and then transported. Aside from natural causes of erosion, including flooding and fire, human activities such as mining, logging, and cattle ranching can also facilitate erosion.

Erosion hazard potential in Butte County, which is displayed in Figure 4.6-4, is dependent on underlying geology and the amount of rainfall the area receives. Erosion hazard increases when protective vegetation is removed. Erosion hazard potential is highest in the foothills and mountainous areas of the county where well-developed soils overlay impervious bedrock on steep slopes and heavy rainfall is not uncommon.

4. Mineral Resources
There are currently 20 mines with permits to operate in Butte County. The county’s predominant mining products are aggregate resources and stone. Aggregate resources, such as sand and gravel, are used extensively in all types of construction, including residential, commercial, industrial, roads and highways, dams, and bridges. There are three categories of rock and aggregate resource operations in Butte County:

♦ In-channel resources, comprising Quaternary gravel present in stream channels.
♦ Off-channel resources or terraces, comprising sands and gravels, which have been overlaid by soils located adjacent to or within an active or ancient floodplain.
♦ Hard-rock operations, comprising consolidated rock materials from higher elevation mountains. The hard-rock mining facilities now operating in Butte County include Bangor Rock Quarry and the Table Mountain Quarry.

5 Attachment G to the Staff Report for the April 21, 2009 Butte County Mining Committee Hearing, available at http://www.buttecounty.net/dds/planning/SMARA/SMARA.htm.
EROSION HAZARD POTENTIAL

FIGURE 4.6-4

Little or None
Slight
Moderate
High
Very High

Airports
Major Roads
Greenline
Highways
Sphere of Influence
City/Town Limits
Railroad
County Boundary

Source: Butte County GIS, 2009.
Gold is also mined in Butte County. The main form of gold mining in Butte County has been placer mining, although underground mining took place historically. Placer mining involves removing the surface gold-bearing gravels, and either washing or chemically extracting the gold ore from the gravel. There are no permitted placer mines in Butte County, although suction dredge mining occurs within the county’s creeks and rivers and is regulated by the Department of Fish and Game. In addition, buried placer deposits can be obtained through drift mining, which involves digging into the ground and tunneling horizontally to extract the gravels. Buried placer deposits are located throughout the county and are not easily identified.

Another kind of gold mining is lode mining, which often involves open pit mines and blasting mountains to expose deep veins of gold. Examples of lode gold mines in Butte County include the Blue Lead, Ohio Dix, and Carr mines.

The State Geologist has not yet mapped the mineral resources in Butte County. However, public or private entities can petition the State Mining and Geology Board (SMGB) to classify specific lands that contain significant mineral deposits and that are threatened by land use incompatibilities. In 1994, the SMGB received a Petition for Mineral Classification for Martin Marietta Materials Table Mountain Quarry near Oroville. This petition involves approximately 320 acres of land that is considered an active basalt mine. The SMGB concluded that part of this mine is classified as a mineral resource of regional or statewide significance and designated the site as MRZ-2. In addition, in 2001, the State classified a portion of the M&T Chico Ranch, a previously-proposed mining site located adjacent to Little Chico Creek 5 miles southwest of Chico, as a mineral resource of regional or statewide significance (MRZ-2). However, the M&T Chico Ranch mine proposal was not approved and is not currently being considered for mining under County permit. These two mineral resource areas are shown in Figure 4.6-5.
C. Standards of Significance

General Plan 2030 and the ALUCP override would have a significant impact on geology, soils or mineral resources if they would:

♦ Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  • Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.
  • Strong seismic ground shaking.
  • Seismic-related ground failure, including liquefaction.
  • Landslides, mudslides or other similar hazards.
♦ Result in substantial soil erosion or the loss of topsoil.
♦ 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, creating substantial risks to life or property.
♦ Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater.
♦ Result in the loss of availability of a known mineral resource that would be of value to the region or the state, or of a locally-important mineral resource recovery site delineated on a mineral resource plan, local general plan, specific plan or other land use plan.

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative geology, soils, and mineral resource impacts that could occur as a result
of implementation of General Plan 2030. Implementation of the ALUCP override would have no geology, soils or mineral resource impact in Butte County, and is not discussed further in this section.

1. Project Impacts
   a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.

   As indicated in Section B.2.a, there is one fault zoned active in under the Alquist-Priolo Earthquake Fault Zoning Act: the Cleveland Hills fault. Rupture of this active earthquake fault could cause damage to structures along its trace. General Plan 2030 designates land within this fault zone primarily for Rural Residential use. Small portions are also designated for Agriculture, Very Low Density Residential and Mixed Use.

   However, General Plan 2030 contains policies that address potential fault rupture impacts. Health and Safety Element Goal HS-6 and its associated policies and actions aim to reduce risks from earthquakes in Butte County. Policy HS-P6.1 requires that appropriate detailed seismic investigations be completed for all public and private projects located within the boundaries of an Earthquake Fault Zone as shown on an Official Earthquake Fault Zone Map and in accordance with the Alquist-Priolo Earthquake Fault Zoning Act of 1972. Policy HS-P6.2 requires that geotechnical investigations be completed prior to approval of schools, hospitals, fire stations, and sheriff stations in order to ensure that these critical facilities are constructed in a way that mitigates site-specific seismic hazards. This policy is consistent with the California Building Code, which requires a greater standard for investigation of seismic hazards at public schools, hospitals and critical public facilities.

   All new construction in Butte County is required to comply with the California Building Code, which contains criteria and standards designed to reduce ground rupture risks to acceptable levels. In order to apply this code to
site development, Butte County requires that new construction be in accordance with building, grading and erosion control ordinances and include inspections during construction to ensure that design standards are met.

The proposed General Plan 2030 goals, policies, and actions, in combination with the Alquist-Priolo Act, California Building Code, and other State and local requirements discussed in Section A, would reduce potential impacts associated with surface fault rupture to a less-than-significant level.

b. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.

As indicated in Section B.2, Butte County is considered a seismically active area. Moderate to strong ground shaking associated with seismic activity could cause damage to structures and injury or death to inhabitants.

However, General Plan 2030 includes policies that address potential ground shaking hazards. As discussed in Section D.1.a, Health and Safety Element Goal HS-6 aims to reduce risks from earthquakes in Butte County through policies that require seismic investigations for new private and public development to ensure that site-specific seismic hazards are mitigated. To reach that goal, Action HS-A6.1 directs the County to develop and implement a program to encourage residents to seismically retrofit existing homes.

Furthermore, as discussed in Section A.1.d, new construction in Butte County is required to comply with the California Building Standards Code, which contains seismic building criteria and standards that are designed to reduce ground shaking risks to acceptable levels.

The proposed General Plan 2030 goals, policies, and actions, in combination with the California Building Code and other State and local requirements discussed in Section A, would reduce potential ground shaking impacts to a less-than-significant level.
c. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction.

Areas of Butte County may be subject to the effects of liquefaction due to underlying sandy and silty sediments and shallow groundwater. These areas are generally found along the Sacramento and Feather Rivers and within smaller drainages. These saturated, cohesionless soils could lose strength and behave like a viscous liquid in the event of strong ground shaking. This loss of strength could result in the sudden collapse or overturning of structures and collapse of pavement.

Standard geotechnical engineering procedures, soil testing, proper design, and quality construction controls can identify and mitigate for liquefiable soils during site development. By applying knowledge about the kinds of soils, their strengths, and groundwater conditions, and by properly designing and constructing fills and foundations, modern soil engineering practices have improved greatly. Through adherence to current standards, subsidence and settlement damage, including liquefaction, can be reduced to levels that are generally considered acceptable.

In addition, General Plan 2030 contains policies that address potential liquefaction hazards. As discussed in Section D.1.a, Health and Safety Element Goal HS-6 aims to reduce seismic risks in Butte County through policies that require that seismic investigations for new private and public development to ensure that site-specific seismic hazards are mitigated. In addition, new construction in Butte County is required to comply with the California Building Standards Code, which contains seismic building criteria and standards that are designed to reduce liquefaction risks to acceptable levels.

The proposed General Plan 2030 goals, policies, and actions, in combination with the California Building Code, Grading and Erosion Control Ordinances, other State and local requirements discussed in Section A, and common construction practices would ensure that potential liquefaction impacts would be less than significant.
d. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides, mudslides or other similar hazards.

As discussed in Section B.2.d, the eastern portion of Butte County includes foothills and mountain areas with steep, potentially unstable slopes that could be subject to landslides. Slope instability and landslides are a common problem where there are steep slopes and unstable geologic formations. General Plan 2030 would allow some development in hilly areas susceptible to landslides, such as the rural communities in the eastern portion of the county.

However, General Plan 2030 contains policies that address potential landslide hazards. Health and Safety Element Goal HS-7 seeks to reduce risks from steep slopes and landslides. Policy HS-P7.1 requires site-specific geotechnical investigations to assess landslide potential for private development and public facilities projects in areas rated “Moderate to High” and “High” in Figure 4.6-2 or the most current available mapping. In addition, new construction in Butte County is required to comply with the California Building Code, which contains building criteria and standards that are designed to reduce landslide risks to acceptable levels.

The proposed General Plan 2030 goals and policies, in combination with the California Building Code, Grading and Erosion Control Ordinances, and other State and local requirements discussed in Section A, would ensure that potential slope instability and landslide impacts would be less than significant.

e. Result in substantial soil erosion or the loss of topsoil.

Erosion results in the loss of topsoil that may reduce crop yields and cause sedimentation problems downstream, and in extreme cases, can lead to landslides. Erosion hazards are of particular concern in the hilly and mountainous areas in the eastern and northern portions of the county. General Plan 2030 allows some development and other land use activities, such as timber harvesting, in these areas, which could increase the risk of erosion. Accelerated erosion may result from development in areas of moderate to steep topography. Soil and wind erosion could result from vegetation removal, imp-
proper farming practices, grading for roadways and construction, and improper diversion and discharge of water. During the winter months, there is an increased risk of soil erosion on construction sites, where bare soil can be exposed and potentially unstable cut and fill slopes can be created.

However, General Plan 2030 includes policies that address potential soil erosion impacts. Health and Safety Element Policy HS-P8.1 requires site-specific geotechnical investigations to assess erosion potential for private development and public facilities in areas rated “Very High” in Figure 4.6-4 or the most current available mapping. Water Resources Element Policy W-P1.7 requires that agriculture, logging, mining, recreational vehicle use, and other open space uses follow best management practices to minimize erosion and protect water resources. Policy W-P6.2 requires proponents of new development to prepare a hydraulic and/or geomorphic assessment of on-site and downstream drainageways that are affected by project area runoff in areas where streambanks are already unstable, as demonstrated by erosion or landslides along banks, tree collapse, or severe in-channel sedimentation. In addition, Agriculture Element Policy AG-P1.1 supports State and federal legislation designed to conserve soil and protect agricultural land.

New construction in Butte County would also be required to comply with the Butte County Grading Ordinance, which includes requirements for control of erosion due to construction activities for certain project types and locations.

The proposed General Plan 2030 goals and policies, in combination with the Butte County Grading Ordinance and other State and local requirements discussed in Section A, would reduce potential erosion impacts to a less-than-significant level.

f. 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.
As discussed in Section B, there are unstable soils in Butte County, and landslides, subsidence and liquefaction are potential hazards. New development allowed by General Plan 2030 could occur in such hazard areas.

However, General Plan 2030 includes policies that address potential unstable soil impacts. As discussed in Sections D.1.c and D.1.d, Health and Safety Element Goals HS-6 and HS-7 aim to reduce liquefaction, steep slopes, and landslide risks in Butte County through policies that require seismic and site-specific geotechnical investigations for new private and public development to ensure that hazards are mitigated. In addition, Goal HS-10 seeks to avoid subsidence from groundwater withdrawal through policies that support programs to monitor subsidence activity and that direct the County to work with water providers and regulatory agencies to ensure safe groundwater withdrawals.

New construction in Butte County is also required to comply with the California Building Standards Code, which contains building criteria and standards that are designed to reduce geologic risks to acceptable levels.

The proposed General Plan 2030 goals, policies, and actions, in combination with the California Building Code, Grading Ordinance, and other State and local requirements discussed in Section A, would ensure that potential unstable soil impacts would be less than significant.

g. Be located on expansive soil, creating substantial risks to life or property. General Plan 2030 would allow new development in areas with expansive soils. Newly constructed buildings, pavements, and utilities in these areas could be damaged by differential settlement due to soil expansion and contraction. These variations in ground settlement may ultimately lead to structural failure and damage to infrastructure.

The adverse effects of expansive soils can be avoided through proper subsoil preparation, drainage, and foundation design. In order to design an adequate foundation, however, the conditions must be assessed through appropriate
soil sampling and laboratory soils testing. Expansive soils are identified through expansion tests of samples of soil or rock. Procedures employed in expansive soils testing are found in many codes and regulations, including the 2007 California Building Code that has been adopted by Butte County. According to the Code, foundations for structures resting on soil with an expansion index greater than 20 shall require special design consideration.

General Plan 2030 also contains policies to address potential hazards from expansive soils. Health and Safety Element Policy HS-P9.1 requires site-specific geotechnical investigations to assess risks from expansive soils for private development and public facilities in areas rated “High” in Figure 4.6-3 or the most current available mapping. In addition, new development in Butte County is required to comply with the California Building Code, which contains structural design standards for foundations. Building Code requirements ensure design and construction in accordance with recommendations from a geotechnical or soils investigation. This includes procedures for handling expansive soils through such techniques as replacement of expansive soils with non-expansive engineered fill, lime treatment, moisture conditioning, and other techniques.

The proposed General Plan 2030 goals and policies, in combination with the California Building Code and other State and local requirements discussed in Section A, would ensure that potential expansive soil impacts would be less than significant.

h. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater.

There are some areas in unincorporated Butte County that have soils that are unsuitable for wastewater disposal through septic systems. These include areas of shallow groundwater, impermeable clay soils, and/or steep slopes. Some existing on-site wastewater systems are located in areas with poor soils that are incapable of supporting the use of alternative wastewater disposal systems.
However, General Plan 2030 includes a number of policies in the Water Resources Element and the Public Facilities and Services Element both to address existing septic systems in areas with poor soils and to ensure the safety of future septic systems.

General Plan 2030 policies seek to reduce the use of septic systems and reduce source and groundwater pollution. In particular, Policy W-P1.2 requires the County to cooperate with State and local agencies to identify and eliminate or reduce all sources of existing and potential point and non-point sources of pollution to ground and surface waters, including sanitary waste systems. In addition, Policy W-P1.8 supports the conversion from septic systems to public sewer service, where feasible.

General Plan 2030 also includes policies to ensure the safety of future septic systems. In particular, Policy PUB-P13.2 requires new development to demonstrate the availability of a safe, sanitary, and environmentally sound wastewater system. Similarly, Policy PUB-P13.3 requires applicants of projects that will rely on on-site wastewater systems to provide detailed plans demonstrating that the system will be adequate to serve the project. Under Policy PUB-P12.1, applicants are permitted to make case-by-case assessments of septic and other wastewater treatment systems to determine appropriate system designs and densities. Applicants may also utilize new technologies that are supported by State and County practices under Policy PUB-P12.1. Lastly, Policy PUB-P12.2 requires on-site wastewater treatment and disposal systems in the Chico area to continue to be regulated according to requirements in the Chico Urban Area Nitrate Compliance Plan.

In addition, Action PUB-A12.1 is to complete and implement updates to on-site wastewater policies and standards, which will include minimum requirements for soil suitability in the locations of proposed wastewater systems, as described in Section A.2.b, above.
The proposed General Plan 2030 goals and policies, in combination with the adoption of the proposed On-Site Wastewater Ordinance, would ensure that potential soils impacts from septic systems would be less than significant.

i. Result in the loss of availability of a known mineral resource that would be of value to the region or the state, or of a locally-important mineral resource recovery site delineated on a mineral resource plan, local general plan, specific plan or other land use plan.

As discussed in Section B.4, the State Geologist has yet to map the mineral resources in Butte County. However, as a result of petitions from private entities, the State Mining and Geology Board has designated two sites MRZ-2 in Butte County. Both of these sites are designated for agriculture in General Plan 2030 land use maps. The agriculture designation precludes significant development on these sites that would result in the loss of the resource.

In addition, General Plan 2030 contains policies that address the protection of mineral resources within Butte County. Conservation and Open Space Element Goal COS-12 and the related policies seek to protect economically viable mineral resources and related industries. Specifically, Policy COS-P12.2 requires the conservation of mineral resources identified by the State to be of regional or statewide significance, and Policy COS-P12.1 requires the conservation of sufficient aggregate resources to meet the county’s fair share of future regional needs. Policy COS-P12.3 restricts permitted uses on lands containing and adjacent to important mineral resources to those compatible with mineral extraction, except in cases where such uses offer public benefits that outweigh those of resource extraction. In addition, Policy COS-P12.6 requires that discretionary projects in the vicinity of permitted mining extraction sites or along existing haul routes record a notice of the right to mine against the property for which a discretionary permit is sought, and that the notice advise owners and subsequent interests in ownership that the existing mining operation has a permitted right to continued mining operations. Furthermore, Action COS-A12.1 directs the County to apply zoning regulations permitting extraction as a conditional use on any lands classified by the State Mining and Geology Board as MRZ-2 or Scientific Zone (SZ).
The proposed General Plan 2030 goals, policies, and actions discussed above would ensure that potential mineral resource impacts would be less than significant.

2. Cumulative Impacts

Development in the Butte County region will continue to expose people and property to seismic hazards and adverse soil conditions. The policies contained in General Plan 2030, along with compliance with State and local regulations addressing building construction, would reduce project-level impacts associated with geology and soils to a less-than-significant level. Development projects in other communities would also be subject to State and local policies and regulations that would address seismic and geologic hazard impacts.

In addition, development outside of Butte County could occur in areas with significant mineral resources, and preclude potential future mining by rendering the resource inaccessible or by establishing urban uses incompatible with mining operation. However, due to strong protections in State law, the vast majority of the region’s potential mineral deposits are expected to remain available for potential mining into the foreseeable future, should site-specific evaluations determine them to be significant and economic.

Overall, State and local policies and regulations would address potential local and site-specific impacts associated with geology and soils, and development in the region would not contribute to an overall loss in the availability of a known mineral resource that would be of value to the region or State. Therefore, the cumulative geology, soils, and mineral resource impact would be less than significant.

E. Maximum Theoretical Buildout

Under the maximum theoretical buildout of General Plan 2030, there would be significantly more development than under the projected 2030 buildout analyzed in Section D, in terms of both the amount and the extent of development. As a result, impacts on geology, soils, and mineral resources would
be more significant. However, as discussed in Chapter 3, it is unlikely that maximum theoretical buildout would ever occur under General Plan 2030, and an analysis of maximum theoretical buildout is not required by CEQA.

F. Impacts and Mitigation Measures

Since there are no significant impacts related to geology, soils, and mineral resources as a result of General Plan 2030, no mitigation measures are required.
This chapter discusses existing hazards and safety issues in Butte County and evaluates the potential hazard and safety impacts resulting from the spatial location of development that would be allowed by General Plan 2030. The following evaluation assesses hazardous materials, airport hazards, emergency response and evacuation plans, and fire hazards. Flooding hazards are discussed in Section 4.8, Hydrology and Water Quality, and seismic hazards are discussed in Section 4.6, Geology, Soils, and Mineral Resources, of this EIR.

A. Regulatory Setting

This section summarizes key federal, State, and County policies and regulations that apply to hazards and safety in Butte County.

1. Federal Agencies, Programs and Regulations
   a. Environmental Protection Agency
      At the federal level, the chief environmental regulator is the US Environmental Protection Agency (EPA), whose mission is to protect human health and the environment. Butte County is designated within EPA Region IX, which includes Arizona, California, Hawaii and New Mexico. The EPA maintains responsibility for cleanup of federal lands and waterways, and the State holds regulatory authority for all other lands.

   b. Hazardous Material Databases
      Information on hazardous materials is listed in a number of databases, including the federal Superfund list, which was created through the Comprehensive Environmental Response, Conservation and Liability Act (CERCLA) of 1980; the EPA’s Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS); and the leaking underground storage tank information system (LUST). These databases are also a primary source of information for legal disclosures, such as Phase I Environmental Site Assessments (ESAs), and to facilitate interagency cooperation.
c. Federal Emergency Management Agency
The primary mission of the Federal Emergency Management Agency (FEMA) is to reduce the loss of life and property and to protect the nation from all hazards, including natural disasters, acts of terrorism, and other man-made disasters, by leading and supporting a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.

d. Disaster Mitigation Act
The Disaster Mitigation Act of 2000 requires a State mitigation plan as a condition of disaster assistance, adding incentives for increased coordination and integration of mitigation activities at the state level through the establishment of requirements for two different levels of state plans: “Standard” and “Enhanced.” States that develop an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program. The Disaster Mitigation Act also established a new requirement for local mitigation plans.

2. State Agencies, Programs and Regulations
a. California Code of Regulations (CCR) Title 22
Hazardous substances are regulated by State and federal agencies in order to protect public health and the environment. Hazardous materials have certain chemical, physical, or infectious properties that threaten life, health, property or environment. The California Code of Regulations (CCR) Title 22 provides the following definition:

A hazardous material is a substance or combination of substances which, because of its quantity, concentration or physical, chemical, or infectious characteristics, may either (1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible or incapacitating irreversible illness; or (2) pose a substantial present or potential hazard to human health and safety, or the environment when improperly treated, stored, transported or disposed of. Hazardous materials include waste that has been abandoned, discarded or recycled on the property and as a
result represents a continuing hazard as the development is proposed. Hazardous materials also include any contaminated soil or groundwater.

b. State Oversight and Enforcement of Hazardous Materials
In California, the Department of Toxic Substances Control (DTSC) is chiefly responsible for regulation, handling, use and disposal of toxic materials in California,¹ while the State Water Resources Control Board (SWRCB) regulates discharge of potentially hazardous materials to waterways and aquifers and administers the basin plans for groundwater resources in the various regions of the state.² The Central Valley Regional Water Quality Control Board (CVRWQCB) oversees surface and groundwater in Butte County.³ Programs intended to protect workers from exposure to hazardous materials and from accidental upset are covered under the Occupational Health and Safety Administration at both the federal level (OSHA) and at the State level through the California Division of Occupational Safety and Health (CAL/OSHA),⁴ as well as through the California Department of Health Services (DHS). Air quality is regulated through the California Air Resources Board (CARB) and Butte County Air Quality Management District (BCAQMD).

c. State Screening Levels
While there are many regulatory programs, there are fewer standards for determining exposure risks due to contamination. Currently the most com-

monly used standards are the Regional Water Quality Control Board’s (RWQCB’s) environmental screening levels (ESLs) for commercial/industrial and residential developments and the DTSC’s California Human Health Screening Levels (CHHSL). The Butte County Department of Environmental Health is the local agency in charge of maintaining the database of reported hazardous releases within Butte County.

d. Safe Drinking Water and Toxics Enforcement Act
The Safe Drinking Water and Toxics Enforcement Act, often referred to as Proposition 65, was passed into State law in 1986. The purpose of this Act is to protect drinking water sources from toxic contamination, warn people of potential exposure to toxic materials, and require certain government employees to report discharges of toxic materials or threatened discharges from businesses and facilities in their jurisdiction. This law requires the State of California to develop a list of chemicals known to cause cancer or reproductive damage. The California Office of Environmental Health Hazard Assessment manages the Proposition 65 List of Chemicals.

e. State of California Multi-Hazard Mitigation Plan
The State of California Multi-Hazard Mitigation Plan (SHMP) is the official statement of the State’s hazard identification, vulnerability analysis, and hazard mitigation strategy. The SHMP is also a federal requirement under the Disaster Mitigation Act of 2000 for the State of California to receive federal

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5 California Regional Water Quality Control Board, September 2007, Screening of Sites with Contaminated Soil and Groundwater, Oakland, CA.

6 California Environmental Protection Agency, 2005, Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties, CALEPA.

f. California Fire Safety Regulations
There are number of State regulations pertaining to fire hazards, including the following.

♦ **Public Resources Code Fire Safe Regulations.** Section 4290 of the Public Resources Code (PRC) covers Fire Safe Regulations, establishing minimum road standards; signing for streets, roads and buildings; private water supply resources; and wildland fuel modification. Section 4290 works in conjunction with building construction development standards in State Responsibility Areas (SRA), which are State-identified lands or areas for which the California Department of Forestry and Fire Protection (CAL FIRE) has the primary responsibility to manage the public safety during a fire incident. SRAs are defined based on land ownership, population density, and land use. In Butte County, SRAs primarily consist of private property outside of incorporated areas and outside of the valley floor. For example, CAL FIRE does not have responsibility for densely populated areas, the valley area, or lands administered by the federal government. In addition, Section 4291 of the PRC requires annual defensible space of 100 feet to be provided around all structures in or adjoining any mountainous area or land covered with forest, brush, grass, or other flammable material.

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♦ **Wildland-Urban Interface Code.** The California Building Commission adopted the Wildland-Urban Interface Codes in late 2005 with an effective date of January 2008. These new codes include provisions for ignition-resistant construction standards in fire prone areas. More specifically, new buildings located in any fire hazard severity zone within SRAs, any locally-designated Very High Fire Hazard Severity Zone (VHFHSZ), or any Wildland-Urban Interface Fire Area must meet the requirements in the new codes. As part of the code revision process, fire hazard severity zones were evaluated and updated. The updated fire hazard severity zones are used by building officials to determine appropriate construction materials for new buildings in the wildland urban interface. These zones are also used by property owners to comply with natural hazards disclosure requirements at the time of property sale, including wildland areas that may contain substantial forest fire risks and hazards, and VHFHSZs. These fire hazard severity zones are also used by local governments when updating their Safety Elements.

♦ **Uniform Fire Code.** This Code may be adopted by counties and local jurisdictions with amendments, and provides minimum standards for many aspects of fire prevention and suppression activities. These standards include provisions for access, water supply, fire protection systems, and the use of fire-resistant building materials. However, the Office of the State Fire Marshal (SFM), along with other State agencies, is in the process of developing and proposing a new Building and Fire Code for California using the 2006 International Building Code (IBC) and the International Fire Code (IFC) as the base document. Many jurisdictions choose to adopt their own version, as is the case in Butte County.

♦ **California Fire Code.** This is the official Code for the State and all political subdivisions. It is located in Part 9 of Title 24 of the California Fire Code.

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Code of Regulations (Title 24 is commonly referred to as the California Building Standards Code). The California Fire Code is revised and published every three years by the California Building Standards Commission. It was most recently published in 2007.¹²

♦ California Health and Safety Code. This Code regulates the abatement of fire-related hazards. It also requires that local jurisdictions enforce the Uniform Building Code, which provides standards for fire-resistive building and roofing materials, and other fire-related construction methods.

♦ California Code of Regulations. Title 19 of this Code establishes regulations related to fire prevention and engineering measures for new construction.

♦ Assembly Bill 337 (Bates Bill). In response to the Oakland Hills fire of 1991, this bill was passed in 1992. It requires brush clearance and fire-resistant roof material (Class A, B, or C) to be used on all new construction that is located in any fire hazard severity zone.

g. California Department of Forestry and Fire Protection
CAL FIRE provides fire protection service to the entire county, with the exception of Chico, Oroville, Paradise, and the El Medio Fire Protection District near Oroville. Under a mutual aid contract, the Butte County Fire Department (BCFD) contracts for staff with CAL FIRE. CAL FIRE/BCFD services include: fire control; emergency medical service; technical rescue response; hazardous materials response; flood control assistance; fire prevention and public safety education; fire law enforcement/arson investigation; and vegetation management. In addition, CAL FIRE/BCFD operates countywide dispatch services, coordinates major emergency response within the county as the mutual aid coordinator, and provides training for career and volunteer firefighters.

3. **Hazardous Materials Transportation Act**

Transportation of hazardous materials on the highways is regulated through the federal Department of Transportation (DOT) and the California Department of Transportation (Caltrans). These agencies use a system of placards, labels, and shipping papers required to identify the hazards of shipping each class of hazardous materials. Existing federal and State laws address risks associated with the transport of hazardous materials. These laws include regulations outlined in the Hazardous Materials Transportation Act administered by the DOT. Caltrans is mandated to implement the regulations established by the DOT, which are published as the Code of Federal Regulations, Title 49, commonly referred to as 49 CFR. The California Highway Patrol (CHP) enforces these regulations. Regulations of hazardous materials and wastes include: the manufacture of packaging and transport containers; packing and repacking; labeling; marking or placarding; handling; spill reporting; routing of transports; training of transport personnel; and registration of highly hazardous material transport.

4. **Local Programs, Regulations and Agencies**

a. **Hazardous Materials Oversight**

Use, storage, and transportation of hazardous waste is heavily regulated by federal, State, and local agencies, including the DTSC, which is authorized to implement the regulations of the federal EPA. Butte County does not have any programs in place for regulation of hazardous wastes, and only responds to hazardous waste issues on a complaint basis. The Butte County Division of Environmental Health is a Certified Unified Program Agency (CUPA). CUPA program elements include inspection of hazardous waste generators, “tiered permitting” of hazardous waste treatment facilities as “conditionally exempt,” “conditionally authorized,” or “permit by rule tiers only,” and limited oversight of aboveground hazardous material storage tank facilities.

In 2006, the Butte County Environmental Health Division launched a new program to identify businesses that may generate or treat hazardous waste.

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Such businesses may be identified on the basis of (1) registration with the State Department of Toxic Substances Control, (2) inclusion in a list of businesses that typically use hazardous materials, and (3) departmental knowledge of businesses through other program activities or an allied agency referral.

Regulation and permitting of potentially hazardous emissions into the atmosphere is handled by the Butte County Air Quality Management District (BCAQMD). BCAQMD’s rules and regulations control emissions from open burning, incineration, smoke, dust, odors, gasoline, paint; and other sources of particulate or gaseous emissions. The three main enforcement tools applied by BCAQMD are the Notice of Noncompliance (NON), the Notice to Comply (NTC), and the Notice to Apply for a Permit (NTA). These notices are a formal record of BCAQMD’s finding that a violation of a State or federal law or local regulation affecting air quality has occurred. In most cases, taking corrective action and paying a penalty can settle a violation. A NON can also involve monetary penalties, civil suits, or criminal prosecution in failure to respond, repeated violation, or serious pollution cases.

b. Butte County Hazardous Waste Management Plan
The Butte County Hazardous Waste Management Plan was completed and approved by the Butte County Board of Supervisors and all of the incorporated municipalities in 1989, and approved by the California Department of Health Services in 1991. The goals of the Plan reflect the County’s intent to reduce the need for additional hazardous waste disposal sites by reducing the amount of waste generated. Goals related to waste reduction include minimizing waste at its source, recycling waste, and reducing the quantity of hazardous substance used. The goals place particular priority on recycling of waste oil, which constitutes the largest portion of the county’s waste stream. Goals related to public health and safety focus on properly treating waste, ensuring safe transportation of waste on the key transportation routes, and siting community collection and transfer stations to contribute to proper handling of the county’s waste.
c. Hazardous Materials Emergency Response Plan
The Environmental Health Division of the County’s Public Health Department has developed a Hazardous Materials Emergency Response Plan (Area Plan) containing processes and strategies for responding to emergencies involving hazardous materials in the county. Hazardous materials incidents result from cleanup of waste, especially drug labs, highway collisions involving tankers or other hazardous transporters, industrial accidents, accidental rupture of a pipeline or tank during construction or demolition, or from a natural disaster such as a flood or landslide which damages a hazardous materials container or pipeline.

Handling of such emergencies is regulated under both federal and State laws which are designed primarily to protect human health and to safeguard the environment.

In Butte County, a unified team from the fire departments of Chico, Oroville, Paradise, Biggs, Gridley, Butte County, and CAL FIRE, operating under a Joint Powers Agreement, serves as first responders to hazardous materials incidents or emergencies. Several agencies, including the Public Health Department, act as support to the team when requested.

d. Butte County Airport Land Use Compatibility Plan
The Butte County Airport Land Use Commission is charged with promoting land use compatibility around the county’s airports in order to minimize public exposure to excessive noise and safety hazards. This is primarily accomplished through the preparation and periodic update of an Airport Land Use Compatibility Plan (ALUCP), the most recent of which was adopted in 2000. The ALUCP encompasses the four principal airports in the county: Chico Municipal Airport, Oroville Municipal Airport, Paradise Skypark Airport, and the Ranchero Airport. Public Utilities Code Section 21676 requires that the Butte County General Plan be in conformance with the ALUCP, unless the Board of Supervisors makes specific findings to overrule the ALUCP or portions of it. The ALUCP is also discussed in Section 4.9, Land Use, of this EIR.
e. Butte County Code

Several sections of the Butte County Code address hazards and safety in Butte County, including the following.

♦ Chapter 8 addresses the preparation and execution of plans for the protection of persons, the environment and property within Butte County in the event of an emergency; the direction of the emergency services organization; and the coordination of the emergency functions of Butte County with the Cities of Chico, Oroville, Gridley and Biggs, the Town of Paradise, and all other affected public agencies, corporations, organizations, and private persons within Butte County.

♦ Similarly, Chapter 20 lists improvement standards for subdivisions, parcel maps, and site improvements to better execute plans in the event of an emergency.

♦ Chapter 38A, Fire Prevention and Protection, supplements fire prevention and protection statutes, regulations, and ordinances enacted by the State, County, and other governmental entities.

f. Butte County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan

The Butte County Multi-Jurisdictional All Hazard Pre-Disaster Mitigation Plan (MHMP) was adopted in March 2007. The overall intent of the MHMP is to reduce or prevent injury and property damage from hazards in the county. It identifies past and present mitigation activities, current policies and programs, and mitigation strategies for the future. The MHMP also establishes hazard mitigation goals and objectives to save lives and reduce injuries, avoid damages to property, protect the environment, and promote hazard mitigation as an integrated policy.

The MHMP also includes Mitigation Action Plans for each of the hazard types it covers, including wildfires, floods, earthquakes, landslides, extreme weather, volcanoes, insect infestations, naturally-occurring biological threats, dam failure, hazardous materials incidents, and terrorism.
Butte County Emergency Operations Plan

The Butte County Emergency Operations Plan (EOP) serves as the official emergency plan for Butte County. It includes planned operational functions and the overall responsibilities of County departments during an emergency situation.

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 Plan defines the County’s planned response to “extraordinary” emergency situations associated with natural disasters, technological incidents, and nuclear defense operations. The Plan is activated by the following alarms or incidents:

- An order of the Butte County Board of Supervisors.
- A state of emergency proclaimed by the Governor.
- A proclaimed state of war emergency.
- A presidential declaration of a national emergency.
- Upon receipt of an attack warning.
- An indication of a nuclear detonation.

The Plan contains a threat summary for Butte County and includes an analysis of natural, technological, and human-caused disasters.

Office of Emergency Services (OES)

Butte County maintains an Office of Emergency Services (OES) to coordinate interagency and intergovernmental comprehensive emergency management planning, operations, and disaster assistance claims management for the county. OES works with State and local agencies to develop effective emergency response systems within the county. OES acts as the requesting and coordinating agency when situations require the involvement of State and other outside agencies.

Butte County Wildfire Protection Plan of 2005

The Butte County Wildfire Protection Plan of 2005 includes several mitigation goals and strategies to address wildfire risks, including the following:
Fire risk and mitigation strategies areas of focus, which deal with preventative measures including information, education and planning; reducing structure ignitability; enhancing suppression; and hazardous fuel reduction planning and implementation.

Mitigation strategies prioritization by zone, which includes defining Home Ignition Zones, Community at Risk Zones, Adjacent Wildland Urban Interface (WUI) Zones (0.5 miles around the community), and Extended Wildland Urban Interface Zones (1 mile around adjacent WUI).

Both mitigation focus areas entail managing development to reduce the risk of fire on private and public property through building practices, reinforcement of structures, debris clearing, and improving local codes and polices.

j. Butte County Fire Department
Since 1931, CAL FIRE has provided staffing to the BCFD through an annual cooperative agreement with the County. Under the terms of this agreement, the County funds CAL FIRE professional command, fire-fighting, and administrative staff to operate the BCFD. Through this arrangement, CAL FIRE and the BCFD function together as a fully consolidated fire protection agency and provide cost-effective fire protection service for Butte County.

B. Existing Conditions

This section discusses the existing conditions pertaining to hazards and safety within Butte County.

1. Hazardous Materials
Hazardous materials include a wide variety of substances commonly used in households and businesses. Used motor oil, paint, solvents, lawn care and gardening products, household cleaners, gasoline, and refrigerants are among the diverse range of substances classified as hazardous materials. Nearly all businesses and residences generate some amount of hazardous waste. Certain
businesses and industries generate larger amounts of such substances, including gas stations, automotive service and repair shops, printers, dry cleaners, and photo processors. Hospitals, clinics, and laboratories generate medical waste, much of which is also potentially hazardous.

a. Hazardous Materials Transport
Nearly all of the hazardous materials transported through Butte County are carried by truck on the State highway system. County roads and city streets are used to transport locally-generated wastes from the source to the regional highway system. The County has not quantified the amount of hazardous materials that are transported through it en route to adjoining counties or states.

Little or no hazardous waste is currently transported through the county via rail. Historically, however, there has been considerable transport of hazardous materials by rail, and a number of investigations have documented contamination.

b. Hazardous Materials Sites
Where a chemical release is discovered, the site is subject to regulatory oversight to comply with applicable hazardous materials regulations. DTSC classifies several sites within Butte County as environmental cases, or areas with potential hazardous materials contamination. Such cases could require investigation and possibly remediation to ensure that chemical concentrations in the soil and/or groundwater are acceptable for the land use at that site. Any contaminated materials left in place could pose a public health hazard if disturbed during construction and could require special disposal requirements if removed from the site.

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A search of the DTSC database of hazardous materials sites identified 41 hazardous materials sites in Butte County, including six sites with land use restrictions, in which the DTSC limits the types of future uses that can occur due to residual levels of contamination. None of the sites with land use restrictions are located within unincorporated Butte County.

Many of the sites listed in the DTSC database are reported for contributing to other groundwater contamination primarily in the Chico area. Many of these sites are also listed in the State Water Resources Control Board inventory of underground storage tanks and leaking underground fuel tanks. There are two large groundwater plumes in the Chico area, the Central Plume and the Southwest Plume. Both of these plumes originated from former dry cleaners, and involve perchloroethylene (PCE) groundwater contamination.

The Southwest Plume extends about 2 miles in length and seven blocks in width in the southwest portion of Chico. In 1991, 14 private wells were shut down due to PCE contamination. In 1992, a carbon treatment unit was installed in Well 46 near the center of the plume. At the initial installation, groundwater samples showed PCE concentrations as high as 38 parts per billion (ppb), which is significantly higher than California Department of Public Health Maximum Contaminant Level for Drinking Water of 5 ppb. Recent raw groundwater samples averaged concentrations of approximately 10 ppb, and samples of treated water detected no PCE. Treatment is expected to continue.

The Central Plume is the largest groundwater plume in Butte County, measuring approximately 1 by 1.5 miles in size, and located in Chico’s downtown area. PCE concentrations have been as high as 2,900 ppb, causing two public wells to be closed by the California Water Service Company in 1990. In July of 1995, the California Department of Toxic Substances Control (DTSC) installed a well and pump, which continue to remove a significant amount of PCE from the groundwater. A Final Remediation Action Plan for the Central Plume was approved by DTSC on June 21, 2007.\(^\text{19}\)

Another class of hazardous materials sites that pose a particular threat to the atmosphere is burn sites, where waste is burned to reduce volume rather than being simply buried in the ground. Burn sites are seldom allowed in municipal areas, but in largely rural Butte County there are a few that have been designated. In 2006, the DTSC certified the Allen Property Burn Piles, located at Nord and Esplanade highways in Chico, indicating that cleanup of the site was completed satisfactorily enough to allow future development to proceed. The cleanup stemmed from Butte County’s concerns about public health after a construction firm, hired by the property owner to clear away and burn debris from the 70-acre site, burned PVC plastic irrigation hose and pressure-treated chromated copper arsenate post and treated wood trellis. Due to health and safety concerns, Butte County authorities stopped the burns and ordered the construction company to clean the site. DTSC testing of the burn piles revealed soil contaminated with arsenic. The burned material was excavated and transported to a permitted landfill. As a result of the unpermitted burning, the responsible construction firm was put on probation for three years and forced to pay a fine.

In 2005, the DTSC certified another burn site known as the Humboldt Road Burn Dump, also in Chico. This site, the City’s primary disposal area, has been the subject of extensive investigation and contains large amounts of burn dump waste.

c. Hazardous Waste Disposal

While Butte County has no registered Class I facilities which accept large volumes of hazardous waste, Butte County did assume responsibility of a permanent household hazardous waste collection facility in 2002. The hazardous waste facility, located adjacent to the Chico Airport, is operated under contract by A/C Industrial Services, Inc. The facility provides a controlled environment for receiving and processing household hazardous waste from all residents of Butte County.

Household hazardous wastes include antifreeze, motor oil, oil filters, latex and oil based paint, pesticides, herbicides, poisons, aerosols, gasoline, paint related products (thinner, stain, varnish, and lacquers), bleaches, polishes, solvents, batteries, household cleaning supplies, pool chemicals, hobby supplies, fluorescent light tubes, mercury thermostats, and electronic waste, including computer monitors, televisions, and other items containing cathode ray tubes.20

Recology Butte Colusa Counties in Oroville and Waste Management, Inc. in Gridley operate additional household hazardous waste facilities for the benefit of their customers concentrated in Oroville, Gridley, and Chico. Recology Butte Colusa Counties operates a transfer facility at 2720 South Fifth Avenue in Oroville. Waste Management Inc. operates a transfer station off of Ord Ranch Road in Gridley.

d. Naturally-Occurring Asbestos

Naturally-occurring asbestos is a hazardous material associated with serpentine rocks, which are found in the foothill and mountain regions of Butte County. The amount of naturally-occurring asbestos present in such rocks can vary widely, and is generally only hazardous when it is released into the air when broken or crushed.

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20 Butte County, August 2, 2007, Butte County General Plan 2030 Setting and Trends Report.
2. Airport Hazards

The major aviation facilities in Butte County include the following:

♦ **Chico Municipal Airport.** This is the largest airport in Butte County and the only one with regularly scheduled commercial service. It is owned and operated by the City of Chico. The airport has two paved runways and is served by one commuter airline, United Express, with daily flights to and from San Francisco. Charter services, Federal Express, cargo carriers, and public agencies also operate out of the airport.

♦ **Oroville Municipal Airport.** This airport is owned by the City of Oroville, but is privately operated. It is the second-largest airport and serves the south county area. The airport’s two paved runways serve general aviation aircraft and business jets.

♦ **Paradise Skypark Airport.** This airport is privately owned and operated with one runway. It is an important regional base for skydiving.

♦ **Ranchaero Airport.** This airport is privately owned and operated with one runway. Flight instruction makes up a large portion of its daily operations.

There are also two private airstrips in unincorporated Butte County: the Richvale Airport, located at 1764 Richvale Highway, and the Johnson Ag-Viation, which is located between Highway 99 and the Riceton Highway directly west of the Thermalito Afterbay. Approximately 14 multi-engine aircrafts and one helicopter use the Johnson Ag-Viation airstrip almost on a daily basis.

3. Fire Hazards

a. Wildland Fire Hazards

Calculation of threat from wildfire hazard is based on a number of combining factors including fuel loading (vegetation), topography and climatic conditions, such as winds, humidity and temperature, as well as the proximity of structures and urban development to fire hazards. Wildland fire hazards are most pronounced in rural-urban interface areas, or where urban development is located close to open space areas where vegetation serves as fuel. Butte
Count y has experienced several large and damaging wildfires in and around the rural-urban interface areas. Generally, the periods of greatest risk for wildland fire are the late summer and early fall, when vegetation is at its driest. Human activity, including residential and agricultural burning, careless disposal of cigarettes, campfires, and use of fireworks can all trigger fires. Natural causes such as lightning strikes may also start fires.

Figure 4.7-1 depicts wildland fire risk in Butte County. Many areas of Butte County face some level of threat from wildland fire. The mountainous area of the county, extending from Butte Meadows in the north to Forbestown in the south, has been designated by CAL FIRE as Very High Fire Hazard Severity Zones. CAL FIRE has designated the foothill area, extending from Forest Ranch in the north to Bangor in the south, as High Fire Hazard Severity Zones. These portions of Butte County contain homes within areas of denser vegetation, providing fuel for fires, and steep slopes that help to hasten the spread of fire.

b. Urban Fire Hazards
Urban fire risk in Butte County is greatest in older structures and neighborhoods built before modern building codes for fire safety and building systems were in place. Other factors affecting urban fire risk and relative likelihood of loss of life or property include building age, height and use; storage of flammable material; building construction materials; availability of sprinkler systems; and proximity to a fire station and hydrants.

c. Evacuation and Access
In more remote parts of the county, the potential risk of losses from wildland fires is exacerbated by the relatively poor access offered by rural roads and the general lack of pressurized fire systems with fire hydrants. Fire safety issues are a concern for the Paradise and Magalia area and other unincorporated communities on the Upper Ridge due to limited road access to and through the area. The Skyway, the major county arterial that serves Paradise, and the Magalia area, has a limited capacity that could negatively affect evacuation and access by emergency vehicles in the event of a natural disaster. Although
Sources: Butte County GIS, 2009; California Department of Forestry and Fire Protection, 2007.

Moderate
High
Very High
Federal Responsibility Area (not classified by CALFIRE)

Airports
Major Roads
Highways
Railroad
Greenline
Sphere of Influence
County Boundary
City/Town Limits

FIGURE 4.7-1
FIRE HAZARD SEVERITY ZONES
an EIR on a project to widen the Skyway from two to four lanes from Pentz Road to South Park Drive was certified in 2005, funding has not been available to complete the widening.

The Upper Ridge communities are especially vulnerable to wildfires because they are isolated on top of a relatively narrow, wooded ridgeline. The existing two-lane roadway across the Magalia Reservoir dam also creates a potential bottleneck for evacuation during catastrophic events. In addition to the anticipated problems created by emergency access and congestion during an evacuation, an earthquake is capable of causing the main earthen Magalia Reservoir dam to subside, which would result in partial or total loss of the roadway.

C. Standards of Significance

General Plan 2030 and the ALUCP override would have a significant hazards and safety impact if they would:

♦ Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

♦ 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.

♦ Emit hazardous emissions or handle hazardous materials, substances or waste within one-quarter mile of an existing or proposed school.

♦ Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.

♦ For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.
♦ For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.

♦ Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

♦ Expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative hazard and safety impacts that could occur as a result of implementation of General Plan 2030 and the ALUCP override.

1. Project Impacts
   a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

The implementation of General Plan 2030 would include land uses that would require the routine use, transport, and disposal of hazardous material and waste within Butte County. Hazardous materials are utilized in all land use designations for manufacturing, agriculture, and household chores, among other activities. Implementation of General Plan 2030 would result in an intensification of land use and a corresponding increase in the amount of hazardous materials stored, transported, and disposed of in unincorporated Butte County. The Industrial land designation is the most likely to utilize the largest quantities of hazardous materials.

However, General Plan 2030 contains policies that address the routine use, transportation, and disposal of hazardous materials. Health and Safety Element Policy HS-P14.4 requires proponents of new hazardous waste management facilities to demonstrate that potential environmental impacts can be mitigated as a condition of approval. Furthermore, Policy HS-P14.2 requires that hazardous materials carrier routes direct hazardous materials transport away from populated areas, and Policy HS-P14.3 limits the transport of haz-
ardous and toxic materials to designated highway and rail routes. In addition, as described in Section A.1 and A.2, federal and State agencies also regulate the routine transport, use, and disposal of hazardous materials.

The routine use, transportation, and disposal of hazardous materials and waste within and through the county is an unavoidable aspect of modern society. However, the risk of death, injury, and/or property loss is lessened through State and local regulations and policies. The implementation of the proposed General Plan policies, in conjunction with federal and State regulations, would reduce the impact of routine use, transport, and disposal of hazardous materials to a less-than-significant level.

Since the ALUCP does not address hazardous materials, implementation of the ALUCP override would have no impact regarding the routine transport, use, or disposal of hazardous materials.

b. 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.

As noted in Section D.1.a, implementation of General Plan 2030 would result in an intensification of land uses that would require the use, transportation, and storage of hazardous materials in unincorporated Butte County. Personal injury, property damage, environmental degradation, or death could result from the release of hazardous materials caused by upset or accident conditions.

However, General Plan 2030 includes policies that address upset and accident conditions potentially involving the release of hazardous materials into the environment. As noted in Section D.1.a, Health and Safety Element Policy HS-P14.2 addresses the potential impacts associated with new hazardous waste management facilities, and Policies HS-P14.2 and HS-P14.3 address the transport of hazardous materials. Furthermore, Policy HS-P14.1 supports the Hazardous Materials Emergency Response Plan (Area Plan), which contains
processes and strategies for responding to emergencies involving hazardous materials in the county.

Although the risk of upset and accident conditions involving the release of hazardous materials into the environment cannot be completely eliminated, it can be reduced to a manageable level. As discussed in Section A.4.a, the Butte County Division of Environmental Health serves as the Certified Unified Program Agency (CUPA) for unincorporated Butte County, and is responsible for the Hazardous Materials Release Response Plans and Inventories (Business Plans); the Hazardous Waste Generator and On-site Hazardous Waste Treatment (tiered permitting) Programs; the Underground Storage Tank Program; the California Accidental Release Prevention Program; and the Aboveground Petroleum Storage Act: Spill Prevention, Control and Countermeasure (SPCC) Plans. Businesses using hazardous materials in Butte County would be required to register with these programs and comply with their guidelines. Proper implementation of these CUPA programs, in conjunction with other State and federal regulations and General Plan 2030 policies discussed above, would reduce the impact of reasonably foreseeable accidents and/or upset conditions involving the release of hazardous materials to a less-than-significant level.

Since the ALUCP does not address hazardous materials, implementation of the ALUCP override would have no impact regarding reasonably foreseeable accident and/or upset conditions involving the release of hazardous materials.

c. Emit hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Implementation of General Plan 2030 would allow land uses that could be reasonably expected to handle hazardous materials or generate hazardous emissions. It is possible that such uses could occur near existing or proposed schools. However, exposure to hazardous materials would be limited as all users of hazardous materials are subject to federal, State, and local laws that ensure that hazardous material use, emission and transportation are controlled to a safe level. The combination of federal, State, and local regulations
described in previous sections, and Health and Safety Element policies identified under Goal HS-14 that call for reducing risks from the harmful effects of hazardous materials, would ensure that the risk to schools of hazardous materials or emissions would be less than significant.

Since the ALUCP does not address hazardous materials, implementation of the ALUCP override would have no impact regarding hazardous materials emissions near schools.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.

As discussed in Section B.1.b, there are a number of sites in Butte County that are included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5. These sites have a history of contamination with hazardous materials and are subject to various State and federal laws and regulators, including the CERCLA, US EPA, DTSC, and RWQCB.

Development allowed by General Plan 2030 could create a hazard to the public or the environment if the development occurs on contaminated sites. All of the sites on which the DTSC has placed land use restrictions are located within the incorporated municipalities. Although all unincorporated area sites in the DTSC database of hazardous materials sites do not have land use restrictions, future development could expose the public or the environment to hazards from site contaminants.

However, General Plan 2030 contains policies designed to lessen the impact of hazardous materials contaminated sites. In particular, Health and Safety Policy HS-P14.5 requires an environmental investigation prior to General Plan Amendment or Rezone approval that would allow uses with sensitive receptors, such as residential developments, schools, or care facilities, on sites previously used for commercial, industrial, agricultural, or mining uses to determine whether soils, groundwater, and existing structures are contaminated and require remediation. The proposed General Plan 2030, in combi-
nation with State and federal regulations, would reduce the hazard to the public and the environment to a less-than-significant level.

Since the ALUCP does not address hazardous materials, implementation of the ALUCP override would have no impact regarding development on hazardous materials sites.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.

As indicated in Section A.4.d, the ALUC has adopted the ALUCP, which establishes land use restrictions for the areas around the four principal airports in Butte County. As discussed further in Chapter 4.9, Land Use, General Plan 2030 conflicts with the ALUCP’s Airport Land Use Compatibility Zones in various locations around all four airports. However, with the exception of two conflict areas discussed below, the ALUCP and General Plan 2030 both allow a similar type of residential development within these conflict areas; the conflicts are only related to the density of development allowed. These impacts from inconsistency with the ALUCP are land use impacts, and they do not relate to the safety of people residing or working in the areas around the airports.

There are two locations where the General Plan 2030 land use map designates an area for residential use and where the ALUCP prohibits residential use. At the Paradise Skypark Airport, the Rural Residential General Plan designation extends into the A Compatibility Zone, which prohibits residential uses. However, as shown in Figure 4.7-2, only a portion of each of the parcels with this designation is within the A Compatibility Zone, so any residential development on the parcels would be required to be constructed outside of the A Compatibility Zone area. In addition, at the Ranchaero Airport, the Medium Density Residential General Plan designation extends into the A Compatibility Zone. However, as shown in Figure 4.7-3, only a portion of each of the
**PARADISE SKYPARK LAND USE COMPATIBILITY**

**Airport Compatibility Zone**
- **A**: No residential uses allowed
- **B1**: Minimum 10 acre lot
- **B2**: Minimum 5 acre lot
- **C**: Minimum 5 acre lot or 4 dwelling units per acre
- **D**: No limit on residential densities

**Highways**

**Railroad**

**Major Roads**

**Sphere of Influence**

**City/Town Limits**

Note: Please see Figure 3-3 for General Plan Land Use Designations legend.
Source: Butte County GIS, 2009.
Airports

Airport Compatibility Zone
- **A** - No residential uses allowed
- **B1** - Minimum 10 acre lot

City/Town Limits
- **B2** - Minimum 5 acre lot
- **C** - Minimum 5 acre lot or 4 dwelling units per acre
- **D** - No limit on residential densities

Highways

Railroad

Major Roads

Sphere of Influence

Note: Please see Figure 3-3 for General Plan Land Use Designations legend.
Source: Butte County GIS, 2009.
parcels with this designation is within the A Compatibility Zone, so any residential development on the parcels would be required to be constructed outside of the A Compatibility Zone area. In addition, all of the parcels that extend into the A Compatibility Zone near the Ranchero Airport area are currently developed with residential uses. Therefore, no additional residential development would occur inside of Airport Compatibility Zones, so no safety impacts would occur.

As indicated in Chapter 3, because of the inconsistencies between General Plan 2030 and the ALUCP, an ALUCP override is required.

Because General Plan 2030 allows development only where development is deemed safe by the ALUCP, the impact is less than significant.

f. For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.

As noted in Section B.2, there are two private airstrips in Butte County: the Richvale and Jones Ag-Viation private airstrips. The Richvale airstrip is approximately 1 mile west of Richvale, while Jones Ag-Viation is located just west of the Thermalito Afterbay. Both airstrips primarily serve nearby agricultural uses and are used to fertilize crops.

Both private airstrips are surrounded by the Agriculture designation under the General Plan 2030 land use map. The closest residential, commercial, or industrial land use designations under General Plan 2030 are approximately 1 mile from the Richvale airstrip. Therefore, there would be a sufficient buffer of agricultural land between the airstrip and residential, commercial, and industrial development, and the proposed project would have a less-than-significant impact related to potential hazards for people living or working in the project area.

Since the ALUCP does not address private airstrips, implementation of the ALUCP override would have no impact regarding hazards associated with private airstrips.
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

General Plan 2030 would allow new development and population growth, resulting in an increase in demand for emergency services during disasters, which could affect the implementation of emergency response and evacuation plans.

However, numerous polices in General Plan 2030 address the County’s emergency preparedness in the event of natural or man-made disasters. Health and Safety Element HS-15 and its associated policies and actions work to ensure that Butte County is prepared for emergency situations. Policy HS-15.1 directs the County to conduct continuous advance planning to anticipate potential threats and improve emergency response effectiveness. Policy HS-P15.2 requires that critical emergency response facilities such as fire, police, emergency service facilities, and utilities be sited to minimize their exposure to flooding, seismic effects, fire, or explosion. In addition, Policies HS-P15.3 and HS-P15.4 address emergency evacuation by keeping emergency access routes free of traffic impediments, and marking streets and developed properties to enable easy identification.

As a result of the proposed goal and policies described above, implementation of General Plan 2030 would cause a less-than-significant impact in relation to emergency planning.

Since the ALUCP does not address emergency planning, implementation of the ALUCP override would have no impact regarding emergency planning.

h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires.

As discussed in Section B.3.a, much of Butte County faces threats from wildland fires. General Plan 2030 would allow new development, particularly in the foothill and mountain areas of the county where there are high fire risks that could expose new populations to loss, injury, or death due to wildfires.
Although the majority of the land within the High and Very High Fire Hazard Severity Zones is designated for Timber Mountain and Agriculture, Foothill Residential and Rural Residential land uses are also allowed in these areas. The development of single-family homes on existing vacant parcels would not be subject to additional discretionary review or associated environmental review prior to the issuance of a building permit.

However, General Plan 2030 includes a number of goals, policies and actions that would reduce wildfire impacts. Health and Safety Element Goal HS-11 and its associated policies and actions seek to reduce risks from wildland and urban fire. Specifically, Policy HS-P11.1 requires that the County consider fire hazards in all land use and zoning decisions, environmental review, subdivisions review, and the provision of public services. Since all structures, even those without discretionary review, are subject to the provisions of the Zoning Ordinance, this policy will reduce the risk for new development on existing vacant parcels.

In addition, Policy HS-P11.4 requires that new development meet current fire safe ordinance standards for adequate emergency water flow, emergency vehicle access, signage, evacuation routes, fuel management, defensible space, fire safe building construction, and wildfire preparedness, which would help to reduce the wildfire impacts on new development. Furthermore, Action HS-A11.1 directs the County to complete roadside fuel reduction projects to reduce wildfire risk, increase visibility, and maintain safe evacuation routes, which would help to reduce wildfire hazards.

In addition, Health and Safety Goal HS-12 and its associated policies and actions seek to protect people and property from wildland and urban fires. Specifically, Policy HS-P12.1 maintains regulations regarding vegetation clearance around structures, and Policy HS-P12.3 requires the use of fire resistant landscaping and fuel breaks in residential areas. In addition, Policy HS-P12.2 requires fuel breaks along the edge of developing areas in High and Very High Fire Hazard Severity Zones, and Policy HS-P12.4 requires all developments in wildland urban interface areas in High or Very High Fire Haz-
ard Severity Zones to provide, at a minimum, small-scale water systems for fire protection.

Finally, Health and Safety Element Goal HS-13 and its associated policy and actions seek to identify safe and effective evacuation routes and access for fire prevention and suppression. Policy HS-P13.1 requires that new development in High or Very High Fire Hazard Severity Zones identify access and egress routes and make improvements or contribute to a fund to develop, upgrade, and maintain these routes. Action HS-A13.1 directs the County to delineate and publish alternative evacuation routes for communities in foothill and mountain areas with high fire potential. In addition, Action HS-A13.2 directs the County to seek funding to conduct a study to identify evacuation routes for areas in High and Very High Fire Hazard Severity Zones, and then to seek funding to implement the necessary improvements to the routes.

In addition to the proposed goals, policies, and action in General Plan 2030, other State and local policies and regulations would mitigate wildfire risk impacts, such as the State Fire Safety Regulations summarized in Section A.2.f, above. The County’s Wildfire Mitigation Action Plan will help to reduce damage and prevent injury from wildfire through wildfire mitigations, including a fuel reduction program, a weed abatement program, construction codes requiring the use of fire resistant building materials in new construction, and improvements to the water supply and hydrant system.21 Additionally, the Butte County Community Wildfire Protection Plan of 2005 will mitigate impacts associated with wildfire in developed areas through evaluation and assessment of proposed structures, implementation of mitigation measures associated with construction, and education programs for private landowners and public agencies.

Development allowed by General Plan 2030 would also be in compliance with safety regulations set forth by Chapters 20 and 38A of the Butte County

Code. Specifically, Chapter 20 lists standards for efficient emergency evacuation plans that are required in subdivisions, parcel maps, and site improvement projects. Chapter 38A would help to mitigate the impact by requiring occupants and property owners to maintain property in such a way that reduces the risk of fire and supplementing other fire prevention and protection regulations that pertain to the county.

Together, the proposed goals, policies, and actions of General Plan 2030 and the other local policies and regulations discussed above would reduce wildfire impacts to a less-than-significant level.

Since the ALUCP does not address wildfire hazards, implementation of the ALUCP override would have no impact regarding wildfire hazards.

2. Cumulative Impacts

As discussed previously, the increase in Butte County’s local population under the proposed General Plan would result in the increased use of and potential exposure to hazardous household, commercial, and industrial materials. There would also be an increase in the population that would be exposed to potential hazards associated with aircraft operation and wildland fires. In addition, the increase in population could lead to an increase in demand for emergency services during disasters. However, most potential project-level impacts associated with hazards and hazardous materials would be reduced to a less-than-significant level due to local, regional, State, and federal regulations, such as those that control the production, use, and transportation of hazardous materials and waste and address development in areas at risk of wildfire. Since impacts associated with hazardous materials, airport hazards, and fire hazards are, by their nature, focused on specific sites or areas, the less-than-significant impacts within unincorporated Butte County would not contribute to a cumulative increase in hazards in the county or the larger region. The potential for cumulative impacts associated with safety and hazards would be less than significant.
E. Maximum Theoretical Buildout

The maximum theoretical buildout allowed under General Plan 2030 would include significantly more development than the projected 2030 buildout analyzed in Section D. Under these conditions, both the amount and the extent of development would be increased, which would in turn increase the potential for hazard and safety impacts. However, as discussed in Chapter 3, it is unlikely that maximum theoretical buildout would ever occur under General Plan 2030, and an analysis of maximum theoretical buildout is not required by CEQA.

F. Impacts and Mitigation Measures

Since there are no significant impacts related to hazards and safety as a result of General Plan 2030 and the ALUCP override, no mitigation measures are required.
This chapter discusses hydrology and water quality in Butte County and evaluates the potential impacts resulting from the spatial location of development that would be allowed by General Plan 2030. Water quality, groundwater, drainage, stormwater and flood hazards are assessed.

**A. Regulatory Framework**

This section summarizes key federal, State, and local agencies, plans, programs, policies and regulations that address hydrology and water quality in Butte County.

1. **Federal Agencies, Programs, and Regulations**
   a. **Federal Emergency Management Agency**
      The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection is established by FEMA. FEMA’s minimum level of flood protection for new development is the 100-year flood event, also described as a flood that has a 1 percent chance of occurring in any given year.

   b. **Clean Water Act**
      The US Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) of 1972 is the primary federal law that governs and authorizes water quality control activities by the EPA as well as individual states. Various elements of the CWA address water quality, and they are discussed below. Wetland protection elements administered by the US Army Corps of Engineers under Sec-

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tion 404 of the CWA, including permits to dredge or fill wetlands, are discussed in Section 4.4, Biological Resources, of this EIR.

Under Section 401 of the CWA, an applicant for a Section 404 permit to discharge dredged or fill material into waters of the United States must first obtain a certificate from the appropriate State agency stating that the fill is consistent with the State’s water quality standards and criteria. In California, the authority to either grant water quality certification or waive the requirement is delegated by the State Water Resources Control Board (SWRCB) to the nine Regional Water Quality Control Boards (RWQCBs). Butte County is within the Central Valley RWQCB (Region 5).

Under federal law, the EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations (40 CFR). Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question and (2) criteria that protect the designated uses. Section 304(a) requires the EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. In California, the EPA has designated the SWRCB and its RWQCBs with authority to identify beneficial uses and adopt applicable water quality objectives.

c. National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the
discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring and other activities.

d. National Wild and Scenic Rivers Act
The National Wild and Scenic Rivers Act was established in 1968 to maintain the natural beauty, biology and wilderness of designated “wild,” “scenic,” or “recreational” rivers threatened by the construction of dams, diversions and canals. The Act seeks to preserve these designated rivers in their free-flowing condition and protect their immediate environments for the benefit and enjoyment of present and future generations.²

A 77.6-mile portion of the Middle Fork of the Feather River has federal Wild and Scenic River status. This river is located within the boundaries of the Plumas National Forest. The wild and scenic designation covers 24,000 acres, generally within a 1/8- to 1/4-mile band along the river, and extends from Beckworth in the Sierra Valley (Plumas County) to Lake Oroville. Approximately 10.5 miles of this wild and scenic river flow through Butte County. The river represents a unique free-flowing stream that is the only charter member of the National Wild and Scenic River System in California.

In addition, a 7-mile segment of the Fall River, entirely located in Butte County between Nelson’s Crossing and Lake Oroville, is eligible for Wild and Scenic River status. This segment of the Fall River meets the Wild and Scenic criteria, and suitability for official designation will be made based on a future study to be conducted by the Plumas National Forest.

2. State Plans, Policies, and Regulations

a. Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) of 1969 is California’s statutory authority for the protection of water quality. Under the Act, the State must adopt water quality policies, plans and objectives that protect the State’s waters for the use and enjoyment of the people. The Act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update water quality control plans (Basin Plans). Basin Plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives and implementation programs are established for each of the nine regions in California. Butte County falls under the Basin Plan for the Sacramento River and San Joaquin River Basins.

The Act also requires waste dischargers to notify the RWQCBs of their activities through the filing of Reports of Waste Discharge (RWD) and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals.3

b. State Regulatory Agencies

In California, the SWRCB has broad authority over State water quality control. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under the CWA. Other State agencies with jurisdiction over water quality regulation in California include the California Department of Public Health for drinking water regulations, the California Department of Pesticide Regulation, the California Department of Fish and Game (DFG), and the Office of Environmental Health and Hazard Assessment.

Regional authority for planning, permitting and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. As noted above, Butte County is within the jurisdiction of the Central Valley RWQCB.

The RWQCBs also run the Irrigated Lands Regulatory Program, which regulates discharges from irrigated agricultural lands. Its purpose is to prevent agricultural discharges from impairing the waters that receive the discharges. To protect these waters, RWQCBs have issued conditional waivers of waste discharge requirements to growers that contain conditions requiring water quality monitoring of receiving waters and corrective actions when impairments are found.

c. California Fish and Game Code
The DFG protects streams, water bodies and riparian corridors through the streambed alteration agreement process under Section 1601 to 1606 of the California Fish and Game Code. The Fish and Game Code stipulates that it is “unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake” without notifying the Department, incorporating necessary mitigation and obtaining a streambed alteration agreement. DFG’s jurisdiction extends to the top of banks and often includes the outer edge of riparian vegetation canopy cover.

d. Flood Control Legislation
New State regulations require protection from the 200-year flood event in specific areas as defined in Government Code Section 65007. According to recent legislation as part of Senate Bill (SB) 5 (Machado and Walk), SB 17 (Florez) and Assembly Bill (AB) 162 (Wolk), urban and urbanizing areas in the Sacramento Valley and San Joaquin Valley will be required to achieve, or make adequate progress toward achieving, 200-year protection by the year 2015 to continue to approve development in the floodplain. Specifically, AB 162 requires that each local jurisdiction’s Safety Element include 200-year floodplain maps. Maps must be based on the best available data on flood pro-
tection, including areas protected by State and federal project levees, and areas outside of these areas. Maps are being prepared by the California Department of Water Resources.4

3. Butte County Programs and Regulations
a. Integrated Water Resources Plan
Butte County adopted an Integrated Water Resources Plan (IWRP) that establishes water management policies and priorities, as well as programs and projects to implement those policies. The policies focus on local water resource issues and cooperative water management with other entities. The IWRP sets the stage for many of the County’s water planning efforts.

b. Groundwater Management Plan
Butte County adopted a county-wide Groundwater Management Plan pursuant to AB 3030. The policy goals of the Groundwater Management Plan include minimizing the long term draw down of groundwater levels, protecting groundwater quality, preventing land surface subsidence, minimizing the effect of groundwater pumping on surface water flows and evaluating groundwater replenishment projects.

c. Groundwater Conservation Ordinance
In November 1996, Butte County voters approved the Groundwater Conservation Ordinance (Chapter 33 of the Butte County Code), which is intended to conserve groundwater by regulating water transfers outside of the county that have a groundwater component. It requires a permit for both exportation of groundwater outside the county and groundwater pumping as a substitute for surface water exported outside the county. It prohibits permits for water transfers outside of the county 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 within the county.

4 Best Available Maps can be found at the California Department of Water Resources website at http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best_available_maps/.

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causing subsidence, or resulting in uncompensated injury to overlying groundwater users or other users.

d. Groundwater Management Ordinance
The Groundwater Management Ordinance (Chapter 33A of the Butte County Code) includes the development and monitoring of basin management objectives (BMOs) associated with groundwater levels, groundwater quality, and land subsidence. The BMO concept is an important component to Butte County’s groundwater management planning. The BMOs consist of locally-developed guidelines for acceptable groundwater conditions (i.e. elevation, quality and land subsidence). The BMO program is built on a foundation of scientific data and analysis, and therefore monitoring historic and current groundwater elevations, water quality and subsidence data are key components of the program.

e. Stormwater Management Program
Butte County operates under a Small Municipal Separate Storm Sewer Systems (Small MS4) permit as required by Phase II of the NPDES, and which currently covers the urbanized area around the City of Chico. In order to fulfill the requirements of the permit, Butte County developed and implemented a Stormwater Management Program in 2003. The program is managed at the State level by the SWRCB under a permit from the EPA. The program includes the following core elements:

♦ Public education and outreach.
♦ Public participation and involvement.
♦ Illicit discharge detection and elimination.
♦ Construction site stormwater runoff control.
♦ Post-construction stormwater management in new development and redevelopment.
♦ Pollution prevention for County operations and facilities.

The program also includes descriptions of Best Management Practices (BMPs) to address specific activities identified in the regulations, such as illicit discharge. The Department of Public Works and the Development Services De-
partment are responsible for planning, inspection, enforcement, and permit clearances for construction projects in the county. The Department of Public Works is responsible for the County’s stormwater drainage system.

f. Butte County Well-Spacing Ordinance (Chapter 23B)
The Well-Spacing Ordinance identifies procedures for the proper construction and placement of water wells, as well as appropriate techniques for retiring out of commission wells. To reduce the risk of depleting the county’s groundwater resources, the Ordinance requires that wells of an engineered pumping capacity of 1,000 gallons per minute or greater must be located no closer to another well than the distances provided in Table 4.8-1, below. The Ordinance also makes clear that retired wells must be sealed to reduce the risk of shallow water contamination into a deep aquifer. Sealing a retired well must be sufficient to exclude water from 50 feet below ground to the surface.

g. Stormwater Management and Discharge Control Ordinance
Butte County adopted the Stormwater Management and Discharge Control Ordinance under Chapter 50 of the Butte County Code. The Ordinance provides the County with the legal authority to enforce various stated goals regarding water pollution to protect and enhance public health and the environment.

h. Butte County Wastewater Ordinance
The Butte County Division of Environmental Health is responsible for permitting and inspection of on-site wastewater systems. Butte County’s Wastewater Ordinance regulates individual on-site wastewater treatment and disposal systems within unincorporated areas of the county. However, to help address failing wastewater systems, and improve the practices and requirements for new construction, the County is in the process of updating its On-Site Wastewater Ordinance. The proposed Ordinance would update and replace existing regulations in order to be more consistent with applicable requirements of the Central Valley Regional Water Quality Control Board (Basin Plan) and to incorporate other changes based on the current state of knowledge and advances in practices and technologies for on-site wastewater
TABLE 4.8-1  WELL SPACING REQUIREMENTS IN BUTTE COUNTY

<table>
<thead>
<tr>
<th>Engineered Pumping Capacity (Gallons per Minute)</th>
<th>Well Spacing Requirement (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000</td>
<td>450</td>
</tr>
<tr>
<td>2,000</td>
<td>1,150</td>
</tr>
<tr>
<td>3,000</td>
<td>1,700</td>
</tr>
<tr>
<td>4,000</td>
<td>2,200</td>
</tr>
<tr>
<td>5,000</td>
<td>2,600</td>
</tr>
<tr>
<td>Greater than 5,000</td>
<td>Variance shall be required</td>
</tr>
</tbody>
</table>

Source: Butte County Code, Chapter 23B-5c.

...treatment and dispersal. In particular, the proposed Ordinance would establish minimum requirements for soil suitability in the locations of proposed wastewater systems. It would also provide a broader range of treatment and dispersal technologies to overcome limiting soil and groundwater constraints. The updated Ordinance has been developed and is currently undergoing public and environmental review. It would become effective when and if adopted by the County Board of Supervisors.

i. Flood Mitigation Plan
The Butte County Flood Mitigation Plan was prepared by the Butte County Office of Emergency Services (OES) and adopted in 2006. The overall purpose of the Plan is to provide guidance to agencies and the public responsible for and interested in protecting life, property and livestock, land use planning, administering the FEMA NFIP, and responding to flood emergencies within Butte County.

j. Flood Hazard Prevention Ordinance
The Butte County Flood Hazard Prevention Ordinance (Chapter 26, Article IV of the Butte County Municipal Code) requires the Department of Devel-
Development Services to review all applications for new construction or subdivisions within flood hazard areas, and requires that the lowest floor of any new construction or substantial improvement within Flood Zones A, AE, AH, and shaded Zone X be elevated 1-foot or more above the regulatory flood elevation. Applicants must also show that development within the floodplain will not raise the existing flood level in a manner that adversely affects any neighboring property.

B. Existing Conditions

Butte County is located in the Sacramento River Hydrological Region, which covers approximately 17 million acres (27,000 square miles) and extends from the Modoc Plateau and Cascade Range at the Oregon border south to the Sacramento-San Joaquin Delta. The region includes Sacramento River, the longest river system in California, and its tributaries. The Sacramento River Hydrological Region is the main water supply for many of California’s urban and agricultural areas. Figure 4.8-1 provides an overview of the major surface water features in Butte County.

1. Climate and Topography

Surface water flows in Butte County and the Sacramento Basin are extremely variable, both seasonally and annually, although their partial dependence on annual snow melt tends to mitigate the seasonal variability. Butte County includes the geographic provinces of the Sacramento Valley, and the foothill and mountain areas of the Sierra Nevada and Cascade ranges. The mountainous portions of the county comprise approximately a third of the County’s land area and function as the major watershed area, though the foothill areas also collect considerable precipitation. Precipitation in different portions of the county ranges from less than 20 inches of annual rainfall in the western valley area to over 80 inches in the eastern Cascades and Sierra Nevada mountains. Up to 4,000 feet above sea level, most of the precipitation falls as rain.
SURFACE WATER FEATURES

FIGURE 4.8-1

Airports
Greenline
Highways
Major Streams
Lakes and Reservoirs

Source: Butte County GIS, 2009.
Above 4,000 feet, a considerable portion of winter precipitation occurs as snow. The precipitation pattern in Butte County varies by area of the county as well as by time of the year. Over half of the precipitation occurs between November and February.

In addition to seasonal variances, surface water flow is highly variable on a year-to-year basis. The Sacramento River Water Supply Index is an indicator of annual surface flow variability in the region. Based on the calculated runoff in million acre-feet (MAF), each year of the index is classified as wet, above normal, below normal, dry or critical. The annual variability for the northern Sacramento Valley is very pronounced, with wet years, dry years, and critically dry years occurring frequently.

2. Water Quality
All land uses, whether undeveloped, agricultural, industrial or urban, have some type of water quality impacts. The most common water quality problems are erosion, sedimentation, and contamination.

a. Erosion and Sedimentation
Erosion can be defined as the wearing away of the land surface by flowing water, waves, wind, or by such process as mass wasting and corrosion. Erosion leads to soil loss, degraded water quality, property damage, and increased danger from flooding. Erosion is directly related to slope steepness, and therefore the mountainous eastern portions of the county are most susceptible to erosion when heavy precipitation leads to significant stormwater runoff. Sediment eroded from these slopes is carried by creeks, streams, and rivers, and leads to increased murkiness in the water, known as turbidity. Once the waterway reaches a shallower gradient, the sediment is deposited.

Downstream impacts of soil erosion include sedimentation and degradation of water quality, such as increased turbidity and suspended sediment concentrations. Eroded soil contains nitrogen, phosphorous and other nutrients. When deposited in water bodies, these nutrients can trigger algal blooms that reduce water clarity, deplete oxygen, and create odors. Eroded sediments
may blanket fauna. The increased cloudiness from suspended sediments may also reduce photosynthesis that produces food supply and natural aquatic habitats. Eroded soil could also be deposited in local drainageways, possibly interfering with the natural flow of storm waters, causing or exacerbating flooding, or accelerating channel erosion.

b. Groundwater Contamination

There are two large groundwater contamination plumes in Butte County: the Central Plume and the Southwest Plume. Both of these plumes are in the Chico area, originated from former dry cleaners, and involve perchloroethylene (PCE) groundwater contamination. Other groundwater contaminants of concern in Butte County include arsenic, chromium, copper, dioxin, and polynuclear aromatic hydrocarbons.

The Southwest Plume extends about 2 miles in length and seven blocks in width in the southwest portion of Chico. In 1991, 14 private wells were shut down due to PCE contamination. In 1992, a carbon treatment unit was installed in Well 46 near the center of the plume. At the initial installation, groundwater samples showed PCE concentrations as high as 38 parts per billion (ppb), which is significantly higher than California Department of Public Health Maximum Contaminant Level for Drinking Water of 5 ppb; recent raw groundwater samples averaged concentrations of approximately 10 ppb, and samples of treated water detected no PCE. Treatment is expected to continue.

The Central Plume is the largest groundwater plume in Butte County, measuring approximately 1 by 1.5 miles in size, and located in Chico’s downtown area. PCE concentrations have been as high as 2,900 ppb, causing two public

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wells to be closed by the California Water Service Company in 1990. In July of 1995, the California Department of Toxic Substances Control (DTSC) installed a well and pump, which continue to remove a significant amount of PCE from the groundwater. A Final Remediation Action Plan for the Central Plume was approved by DTSC on June 21, 2007.

Nitrate contamination of groundwater can be caused by septic tank discharges, as has been documented in the Chico area of Butte County. A Nitrate Action Plan was developed by the County in the mid-1980s, later superseded by the Nitrate Compliance Plan, which was adopted by the Board of Supervisors on September 25, 2001. The 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.

3. Groundwater Supply and Recharge
Approximately 75 percent of the County’s residential water supply is extracted from groundwater. The availability of groundwater in an area depends largely upon its geologic, hydrologic, and climatic conditions. In Butte County, reserves of groundwater are found in the thick sedimentary deposits of the Sacramento Valley and the mountainous areas to the east and north. Groundwater is found in perched, unconfined and confined zones in the valley portion of Butte County. Perched groundwater zones are most common in shallow, consolidated soils with low permeability. Major portions of groundwater are unconfined or semi-confined, occurring in floodplain and alluvial fan deposits. High permeability in these soils yields large amounts of water to shallow domestic and irrigation wells. The Tuscan Formation contains an important deep aquifer that is theorized to underlie most of the valley area. Confined water occurs in the Tuscan and Laguna Formations, and in the younger alluvium, where it is overlain by flood basin deposits. Although moderate amounts of water are yielded from the fine-grained strata of the Laguna Formation, permeable sand and gravel zones are infrequent and minor in extent and thickness. The highest producing well in alluvial uplands occur when older alluvium or the deeper Tuscan volcanic rocks are tapped. Groundwater can also be found in more limited amounts in mountainous
areas of the county within volcanic, metamorphic, and granitic rock with a
total volume of water stored estimated to be less than 2 percent of the rock
volume. Figure 4.8-2 illustrates the groundwater basin and subbasins within
Butte County.

The major sources of groundwater recharge in Butte County are percolation
of rainfall, infiltration from streams, subsurface inflow, and deep percolation
of applied irrigation water in agricultural areas. Subsurface inflow from
higher elevations and percolation of precipitation are the major sources of
groundwater recharge in the mountain areas. Some recharge probably occurs
adjacent to through-flowing streams in areas of deeper soils or alluvial depos-
its. Deep subsurface inflow occurs in mountainous areas, flowing west to
recharge the adjacent valley area. Most of this recharge occurs on alluvial fans
where streams have sustained flow and the soil is highly permeable. Of the
3.77 MAF of annual rainfall, less than half is used. Therefore, more than 2
MAF are currently available for recharge or discharge via surface and subsur-
face outflow, although this amount will not always be available.

In areas with clay soils or buried hardpan layers, high rates of surface runoff
and ponding of water indicate locations where infiltration rates are low. Infil-
tration of surface runoff does occur at the basin margin where Tuscan and
fanglomerate rocks are overlain by valley deposits.

4. Stormwater
When precipitation falls onto the ground surface, it naturally infiltrates into
the ground, and when the ground is saturated, it runs off as surface flow.
Stormwater in Butte County is currently conveyed through a system of
ditches, culverts and underground storm sewers to regional waterways.
Stormwater that falls on impervious surfaces such as roads, driveways and
parking lots picks up residual pollution such as oil, sediment, and trash.
These materials are then washed into waterways and pollute the rivers and

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7 Butte County, August 8, 2005, General Plan Technical Update Background Report, page 12-16.
Source: Butte County GIS, 2009.
Note: Groundwater in the eastern portion of the county is found in limited amounts within volcanic, metamorphic, and granite rock.
reservoirs of Butte County and other downstream receiving waters. In addition, stormwater runs off impervious surfaces at a faster rate than off of soil or natural surfaces. Increased rates stormwater runoff can result in hydro-modification of downstream waterways through eroded streambanks and deeply cut creek channels.

Annual runoff in the Sacramento River Hydrologic Region averages about 22.4 MAF, which is nearly one-third of the State’s total natural runoff. Major water supplies in the region are provided through surface storage reservoirs. Annually, municipal, industrial, and agricultural water usage in the region is about 8 MAF, with about 5.5 MAF coming from surface water sources, and groundwater providing about 2.5 MAF. A substantial portion of the remainder of the total runoff goes to dedicated natural flows, including in-stream fishery flows and flushing flows in the Sacramento Delta.

5. Flooding Hazards
   a. Surface water
   Butte County has historically been subject to flooding from various rivers and creeks, most particularly from the Feather and Sacramento Rivers. The County completed an assessment of flood hazards as part of the Butte County Flood Mitigation Plan. The following are the principal flood hazard areas in Butte County:
      ♦ Butte Creek
      ♦ Little Chico Creek
      ♦ Little Chico Creek Diversion
      ♦ Mud Creek
      ♦ Ruddy Creek and Ruddy Creek Tributary
      ♦ Sycamore Creek
      ♦ Wyman Ravine and Tributaries
      ♦ Comanche Creek

   In addition to the hazard areas listed above, flooding in Rock Creek and Keefer Slough, located north of Chico, occurred on several occasions in the 1980s, 1990s, and 2000s, inundating State Routes 99 and 32 and several
County roadways, as well as impacting extensive residential and agricultural areas around Chico and the unincorporated community of Nord.

Figure 4.8-3 shows the current FEMA FIRM map for Butte County. FEMA mapping of flood hazards for all of Butte County has been completed with the most accurate and up-to-date information derived from the 2006 Butte County Flood Mitigation Plan. The Flood Mitigation Plan uses information from year 2000 FEMA data. As of March 2010, FEMA is the process of providing an updated FIRM.

b. Dam Inundation
Any dam poses a potential risk of failure, which would most likely be caused from seismically induced ground shaking or other seismic events, and which threatens the area below the dam with inundation. Since 1972, the State has required inundation maps for most dams, showing those areas within the potential dam failure inundation zone. Major dam inundation areas in Butte County are shown in Figure 4.8-4. Most of the dams in and around Butte County would affect a relatively small local inundation area. However, the failure of the Oroville Dam or Thermalito Afterbay Dam, although considered unlikely, would have the potential to inundate a substantial portion of southwestern Butte County. In addition, the western edge of the county is within the inundation areas of the Shasta, Black Butte, and Whiskeytown Dams.

In 1992, Harlan Tate Associates studied the Magalia Dam and found the upstream slope of the dam to have inadequate stability under seismic loading conditions. As of 2003, the water level in the reservoir was lowered 25 feet due to seismic stability concerns. The County is undertaking preliminary engineering on a project to widen the Skyway across Magalia Dam. The Paradise Irrigation District’s preferred alternative for the widening project involves stabilizing the dam and would permit the restoration of the design water level behind Magalia Dam.
Source: FEMA FIRM designations. FEMA is in the process of updating this information. This map reflects the most current available data as of the publication of the Draft EIR 2030 in December 2009.
Sources: Butte County Geographic Information Systems, 2009; California Office of Emergency Services, 2006.
C. Standards of Significance

General Plan 2030 and the ALUCP override would have a significant hydrology or water quality impact if they would:

♦ Violate any water quality standards or waste discharge requirements.

♦ Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a significant lowering of the local groundwater table level.

♦ Substantially alter the existing drainage pattern of the site or area in a manner which would result in substantial erosion, siltation or flooding on- or off-site.

♦ Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

Provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality.

♦ Place occupied development 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.

♦ Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

♦ Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

♦ Potentially be inundated by seiche, tsunami, or mudflow.

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative hydrology and water quality impacts that could occur as a result of implementation of General Plan 2030. Implementation of the ALUCP override
would have no hydrology or water quality impact in Butte County, and is not discussed further in this section.

1. Project Impacts
   a. Violate any water quality standards or waste discharge requirements.

   Development allowed by General Plan 2030 could degrade water quality in Butte County. An increase in non-point-source pollution could result from covering undeveloped land with impervious surfaces such as pavement and buildings. Construction activities could expose bare ground to the erosive forces of wind and water, which could lead to increased sediment loads in downstream receiving waters. The additional traffic anticipated within Butte County would mean increased potential for oil, grease, and other contaminants to accumulate on road surfaces and in roadside gutters. Some development allowed by General Plan 2030 is likely to use solvents, lawn chemicals, paint, petroleum products, metals, and other materials which could potentially accumulate on parking lots and other paved surfaces. All of these materials may be carried to rivers and other water bodies by surface runoff during rainstorms. In addition, agricultural activities, including livestock operations, can adversely affect water quality through excess fertilizer, pesticides, and animal waste. Recreational activities, such as boating, can lead to minor impacts on water quality.

   However, General Plan 2030 contains policies that address water quality standards and waste discharge requirements. Water Resources Element Goal W-1 and its associated policies seek to maintain and enhance water quality. Specifically, Policy W-P1.2 directs the County to cooperate with State and local agencies in efforts to identify and eliminate or minimize all sources of existing and potential point and non-point sources of pollution to ground and surface waters, including leaking fuel tanks, discharges from storm drains, auto dismantling, dump sites, sanitary waste systems, parking lots, roadways, and logging and mining operations. Policy W-P1.8 requires agriculture, logging, mining, recreational vehicle use, and other open space uses to follow best management practices to minimize erosion and protect water resources. Pol-
icy P1.11 requires enforcement of grading and construction regulations to minimize erosion and urban stormwater runoff pollution.

In addition, policies under Goal W-5 protect water quality through effective stormwater management. Specifically, Policy W-P5.2 requires that new development identify and adequately mitigate its water quality impacts from stormwater runoff, and Policy W-P5.4 requires that temporary facilities be installed as necessary during construction activities in order to adequately treat stormwater runoff from construction sites.

The General Plan policies discussed above, in conjunction with the Butte County Stormwater Management Program, Butte County Stormwater Management and Discharge Control Ordinance, and other State and federal regulations discussed in Section A, would reduce water quality impacts to a less-than-significant level.

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a significant lowering of the local groundwater table level.

Some urban development and agricultural uses allowed by General Plan 2030 would use groundwater. In addition, new construction could include impervious surfaces, which would decrease the amount of land area available for rainfall to infiltrate into the ground and recharge the underlying water table.

However, General Plan 2030 contains actions and policies designed to maintain groundwater supplies and sustain groundwater resources. Water Resources Element Policy W-P2.9 requires that applicants for new major development projects demonstrate adequate water supply to meet the needs of the project, including an evaluation of potential cumulative impacts to surrounding groundwater users and the environment. Policy W-P3.1 directs the County to ensure the sustainability of groundwater resources, including groundwater levels, groundwater quality, and avoidance of land subsidence, through a basin management objective program that relies on management at the local level, utilizes sound scientific data, and assures compliance. Policy
W-P3.1 is being implemented though the Groundwater Management Ordinance (Chapter 33A of the Butte County Code). Policy W-P3.2 requires that groundwater transfers and substitution programs be regulated to protect the sustainability of the county’s economy, communities, and ecosystem. Policy W-P3.2 is being carried out through the Groundwater Conservation Ordinance (Chapter 33 of the Butte County Code). Policy W-P4.6 requires that new development adopt best management practices for water use efficiency and demonstrate specific water conservation measures, and Policy W-P4.7 requires that County facilities adopt water conservation measures and, when appropriate, retrofit existing facilities. Finally, Action W-A3.5 directs the County to continue to seek funding for and conduct scientific analysis of the costs and water supply impacts of increased groundwater pumping.

General Plan 2030 also contains policies and actions designed to promote groundwater recharge and minimize impervious land cover. Policy W-P3.3 protects groundwater recharge and groundwater quality in new development projects. Action W-A3.1 directs the County to seek funding for and conduct comprehensive, countywide mapping of water resources and groundwater recharge areas, and Action W-A3.2 directs the County to develop standards to preserve groundwater recharge and protect groundwater quality. In addition, Policy W-P1.4 encourages Low Impact Development, which minimizes impervious surfaces, minimizes runoff and pollution, and incorporates best management practices. Conservation and Open Space Element Policy COS-P1.4 encourages new development to provide above-ground and natural stormwater facilities and use building designs and materials that promote groundwater recharge.

The General Plan policies and actions discussed above, in conjunction with the Butte County Integrated Water Resource Plan, Butte County Groundwater Management Plan and other State and federal regulations discussed in Section A, would reduce groundwater impacts to a less-than-significant level.
c. Substantially alter the existing drainage pattern of the site or area in a manner which would result in substantial erosion, siltation or flooding on- or off-site.

Alterations to drainage patterns during and following construction allowed by General Plan 2030 have the potential to result in construction-related increased runoff and erosion problems. In addition, increased stormwater runoff resulting from increased impervious surfaces can create erosive velocities and higher bank shear stress, which can ultimately cause bank and bed erosion and/or sedimentation in drainages and streams. Minor increases in tributary flows can also exacerbate creek bank erosion and/or cause destabilizing channel incision by altering the so-called “channel-forming” flow. Bank instability and bank failure often occurs in urban drainage systems where the “channel-forming” flow has been substantially altered.

However, General Plan 2030 includes policies designed to minimize the impact of erosion, siltation and flooding as a result of site drainage alteration. The Water Resources Element addresses construction-related impacts through Policy W-P5.4, which requires that temporary facilities be installed as necessary during construction activities in order to adequately treat stormwater runoff from construction sites. In addition, Policy W-P1.7 requires that agriculture, logging, mining, recreational vehicle use, and other open space uses follow best management practices to minimize erosion and protect water resources. Policy W-P6.1 requires that any alteration of natural channels for flood control retain and protect riparian vegetation to the extent possible while still accomplishing the goal of providing flood control. Where removing existing riparian vegetation is unavoidable, the alteration must allow for reestablishment of vegetation without compromising the flood flow capacity. Policy W-P6.2 requires that, where streambanks are already unstable, proponents of new development prepare a hydraulic and/or geomorphic assessment of on-site and downstream drainageways that are affected by project area runoff.

In addition, the Heath and Safety Element addresses the impact of development on drainage through Policy HS-P3.1, which requires that watersheds be
managed to minimize flooding by minimizing impermeable surfaces, retaining or detaining stormwater, and controlling erosion. Furthermore, Policy HS-P3.2 requires that applicants for new development provide plans detailing existing drainage conditions and specifying how runoff will be detained or retained on-site and/or conveyed to the nearest drainage facility and provide that there will be no increase in the peak flow runoff to said channel or facility. Policy HS-P3.3 requires that all development include stormwater control measures and site design features that prevent any increase in the peak flow runoff to existing drainage facilities, and Policy HS-P3.4 requires that developers pay their fair share for construction of off-site drainage improvements necessitated by their projects. In addition, Action HS-A2.3 directs the County to work with municipalities, special districts, the farming community, and property owners to jointly prepare and implement a Basin-Wide Master Storm Drainage Plan to address downstream flooding and to protect properties and the public from flooding.

The General Plan policies discussed above, in conjunction with the Butte County Stormwater Management Program, Butte County Stormwater Management and Discharge Control Ordinance, and other State and federal regulations discussed in Section A, would reduce drainage impacts to a less-than-significant level.

d. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

Development allowed by General Plan 2030 would result in more impervious surfaces, thereby increasing stormwater runoff to levels that could exceed the capacity of existing or planned stormwater drainage systems.

However, General Plan 2030 Water Resources Element contains policies that address stormwater runoff capacity. Policy W-P1.4 encourages Low Impact Development, which minimizes impervious area, minimizes runoff and pollution, and incorporates best management practices. Policy W-P5.3 allows and encourages pervious pavements. Policy W-P5.5 requires that stormwater collection systems be installed concurrently with construction of new roadways.
to maximize efficiency and minimize disturbance due to construction activity.

In addition, as described in Section D.1.c, the Health and Safety Element addresses stormwater impacts through Policies HS-P3.1 through HS-P3.4. In particular, Policy HS-P3.2 requires that applicants for new development provide plans detailing existing drainage conditions and specifying how runoff will be detained or retained on-site and/or conveyed to the nearest drainage facility, without increasing the peak flow runoff to said channel or facility. Policy HS-P3.3 requires that all development include stormwater control measures and site design features that prevent any increase in the peak flow runoff to existing drainage facilities.

The General Plan policies discussed above, in conjunction with the Butte County Stormwater Management Program, Butte County Stormwater Management and Discharge Control Ordinance, and other State and federal regulations discussed in Section A, would ensure that any development leading to increased stormwater runoff would be required to provide sufficient stormdrain infrastructure, reducing stormwater capacity impacts to a less-than-significant level.

e. Provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality.

As discussed in Section D.1.a, development and land uses allowed by General Plan 2030 could degrade water quality in Butte County. However, General Plan 2030 Water Resources Element contains policies that address water quality, including Policies W-P1.2, W-P1.7, W-P5.2 and W-P5.4. These General Plan policies, in conjunction with the Butte County Stormwater Management Program, Butte County Stormwater Management and Discharge Control Ordinance, and other State and federal regulations discussed in Section A, would reduce water quality impacts to a less-than-significant level.
f. Place occupied development 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.

Butte County contains areas currently designated as 100-year flood zones, and the General Plan 2030 land use map allows occupied development within these flood hazard areas. However, General Plan 2030 includes policies designed to prevent flooding of occupied developments. Specifically, Health and Safety Element Policy HS-P2.4 prohibits development on lands within the 100-year flood zone, as identified on the most current available maps from FEMA, unless the applicant demonstrates that it will not:

♦ Create danger to life and property due to increased flood heights or velocities caused by excavation, fill, roads and intended use.
♦ Create difficult emergency vehicle access in times of flood.
♦ Create a safety hazard due to the height, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site.
♦ Create excessive costs in providing governmental services during and after flood conditions, including maintenance and repair of public facilities.
♦ Interfere with the existing water conveyance capacity of the floodway.
♦ Substantially increase erosion and/or sedimentation.
♦ Contribute to the deterioration of any watercourse or the quality of water in any body of water.
♦ Require storage of material or any substantial grading or substantial placement of fill.
♦ Conflict with the provisions of the applicable requirements of Government Code Sections 65865.5, 65962 or 66474.5.

In addition, Policy HS-P2.5 requires that the lowest floor of any new construction or substantial improvement within Flood Zones A, AE, AH, and shaded Zone X, as shown in Figure 4.8-3 or the most current maps available from FEMA, be elevated 1 foot or more above the 100-year flood elevation.
General Plan 2030 policies and actions that respond to the recent State legislation described in Section A.2.d will provide additional precautions against placing habitable structures within areas prone to floods. Policy HS-P2.6 requires that the County make specific findings related to flood safety prior to development approval that would result in the construction of a new residence. Under this policy, the County must find that it has imposed conditions that will protect the property to the urban level of flood protection, as defined in Government Code Section 65007, in urban and urbanizing areas, or to the FEMA standard of flood protection in nonurbanized areas. In addition, Action HS-A2.1 directs the County to update General Plan 2030 within 24 months of the adoption of the Central Valley Flood Protection Plan (CVFPP) to appropriately reflect the CVFPP and to identify State and local flood management facilities and flood hazard zones.

Although implementation of General Plan 2030 could allow development within the 100-year flood hazard zone, General Plan 2030 policies discussed above, in combination with the Butte County Flood Hazard Prevention Ordinance, Butte County Flood Mitigation Plan, and other State and federal regulations discussed in Section A, would reduce 100-year flood hazard zone impacts to a less-than-significant level.

g. Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

As discussed in Section D.1.f, Butte County contains areas currently designated as 100-year flood zones, and General Plan 2030 land use map allow development within these flood hazard areas. However, General Plan 2030 includes policies that would mitigate flood flow impacts. As noted, Health and Safety Element Policy HS-P2.4 prohibits development on lands within the 100-year flood zone, as identified on the most current available maps from FEMA, unless the applicant demonstrates that it will not, among other criteria:

♦ Create danger to life and property due to increased flood heights or velocities caused by excavation, fill, roads and intended use.

♦ Interfere with the existing water conveyance capacity of the floodway.
Contribute to the deterioration of any watercourse or the quality of water in any body of water.

Therefore, although General Plan 2030 could allow the placement of structures in the 100-year flood hazard zone, General Plan 2030 policies discussed above, in combination with the Butte County Flood Hazard Prevention Ordinance, Butte County Flood Mitigation Plan, and other State and federal regulations discussed in Section A, would ensure that the impact of impedance and redirection of flood waters would be less than significant.

h. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Floods can occur as a result of extreme precipitation, whereby water levels of drainage ways, such as streams, creeks and rivers, are overwhelmed by the stormwater runoff, exceed banks, and inundate the surrounding area. There are a number of levees in Butte County that provide various levels of protection for the citizens and property in the county from flooding hazards. There are also dams that serve as water storage features in the county and surrounding areas. Failure of these flood control and water storage features could lead to inundation of populated areas of Butte County.

Butte County has a number of levees constructed by both private individuals and government agencies. Many of these are aging and may need repair and maintenance in order to adequately control flood flows. Recently, FEMA adopted a new policy that would de-certify a number of levees in Butte County and would not consider these levees when developing FIRMs. This policy has led to significantly larger areas being designated as flood zones.

Key levee systems in the county line creeks, sloughs, and tributaries. The levees on the following creeks were not designed or constructed to provide the FEMA 100-year level of protection: Butte Creek downstream of the Skyway, Hamlin Slough, Little Chico Creek downstream of the Butte Creek Diversion Channel, Comanche Creek, and Cherokee Canal. During intense
storms, water could flow over the top or otherwise breach these levees and break out of the channel, not returning to the main channel for several thousand feet downstream, if at all. Therefore, areas on the landside of these levees are shown on the 1998 and 2000 FIRMs as being subject to inundation in the base flood, or flood that has a 1-percent chance of occurring in any year. FEMA is the process of developing flood plains for potential levee failures along Sycamore Creek, Mud Creek, Big Chico Creek, and the west side of the Feather River.

In addition, as discussed in Section B.5.b, portions of Butte County would be subject to inundation caused by dam failure. The failure of the Oroville Dam or Thermalito Afterbay Dam, although considered unlikely, would have the potential to inundate a substantial portion of southwestern Butte County. A major seismic event, if sufficiently intense, would be the most likely cause of dam failure as a number of geologic faults have been identified in the Oroville area. The Oroville Dam could withstand a 6.5-magnitude earthquake, which is considered to be the largest credible event projected for the region. In addition, the western edge of the county is within the inundation areas of the Shasta Dam, Black Butte Dam, and Whiskeytown Dam. The Magalia Dam has been found to have inadequate stability under seismic loading conditions.

General Plan 2030 includes policies that protect people and property from flooding. As discussed in Sections D.1.f and D.1.g, Health and Safety Element Policies HS-P2.4 and HS-P2.5 protect people and property from flood risks within the 100-year flood hazard zone and ensure that development within this area will not impede or redirect flood flows. As discussed in Section D.1.c, Policies HS-P3.1 through HS-P3.4 work to prevent and reduce flooding. In addition, Policy HS-P2.1 supports the efforts of regional, State and federal agencies to improve flood management facilities along the Sacramento River, and Policy HS-P2.2 supports the efforts of private landowners and public agencies to maintain existing flood management facilities.

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Furthermore, policies and actions under Goals HS-4 and HS-5 address flooding impacts related specifically to levee or dam failure. Policies HS-P4.3 and HS-P5.1 require that new development in levee and dam inundation areas consider risks from failure of these levees and dams. Policies HS-P4.1 and HS-P4.2 support the efforts of public and private entities to study levee stability and design and reconstruct levees that do not meet flood protection standards. Action HS-A5.1 directs the County to maintain and update emergency response plans that address potential flooding in dam inundation areas, and Action HS-A5.2 directs the County to coordinate with other agencies to seek funding and implement the stabilization of the Magalia Dam.

Although General Plan 2030 policies and actions discussed above would reduce potential impacts related to flooding as a result of levee failure, they do not eliminate the risks to people and property from flooding. In addition, recently-adopted policies by FEMA would de-certify a number of levees in Butte County, which indicates that larger areas of Butte County are subject to levee inundation than realized under previous policies. Given the number of levees in Butte County, and the fact that most are owned or maintained by private individuals or other public agencies, it is not feasible for the County’s General Plan to completely address maintenance and improvements to all levees to the extent necessary to eliminate risks from levee failure. The impact is therefore considered significant and unavoidable.

In addition, although General Plan 2030 policies and actions discussed above would reduce potential impacts related to flooding as a result of dam failure, they do not eliminate the risks to people and property from flooding. Dams within and around Butte County that pose risks to people and property resulting from dam inundation are owned and/or operated by other agencies, and seismic activity in the region could cause dam failure. It is therefore not feasible for the County’s General Plan to completely address improvements to all dams to the extent necessary to eliminate risks from dam failure. The impact is therefore considered significant and unavoidable.
i. Potentially be inundated by seiche, tsunami, or mudflow.

While seiche action has not been observed in Lake Oroville, it could potentially occur, most likely from a landslide or seismically induced landslide from the hills around the lake, which could displace a mass of soil and bedrock that would fall or flow downslope into the lake. This would then displace the water in the lake, creating a seiche wave. The size and orientation of the seiche wave generated would depend upon the size of the landslide mass and the location where it enters the lake. The height of the wave generated could be on the order of several feet to tens of feet.

The current uses on the margins of Lake Oroville are primarily recreation and conservation uses. The current primary uses that could be affected by a seiche occurring in the lake would be the marina, boating, and house boat uses. Nearby residential uses would be set back from the existing recreation and conservation uses and elevated above the lake, similar to the existing development patterns, and outside of areas that would likely be affected by a seiche. Overall, General Plan 2030 would have a less-than-significant impact from inundation by seiche.

Butte County has no coastline that could be subject to inundation due to tsunamis. Therefore, there is no impact associated with tsunamis.

The mountainous eastern portion of the county could be subject to mudflows during periods of heavy precipitation. As discussed in Section D.1.d of Section 4.6, Geology, Soils, and Mineral Resources, General Plan 2030 Health and Safety Element contains policies that reduce the impacts of mudflows. Policy HS-P7.1 requires site-specific geotechnical investigations to assess landslide potential for private development and public facilities projects in areas rated “Moderate to High” and “High” in Figure 4.6-2 or the most current available mapping. In addition, new construction in Butte County is required to comply with the California Building Code, which contains building criteria and standards that are designed to reduce landslide risks to acceptable levels. These General Plan 2030 policies, in combination with the California Building Code, Grading and Erosion Control Ordinances, and other State...
and local requirements, would ensure that mudflow impacts would be *less than significant*.

### 2. Cumulative Impacts

As development proceeds within Butte County, impervious surfaces and the amount of pollutants will increase, thereby impacting surface and groundwater quality. Additional population would also be at risk of flooding. However, cumulative water quality impacts in Butte County and the surrounding region would be reduced by implementing Best Management Practices in accordance with the NDPES program, and implementation of the water quality policies contained in General Plan 2030 would further reduce Butte County’s contribution to cumulative water quality impacts. With General Plan 2030 policies and actions in place and continued compliance with the NPDES and other RWQCB regulation in the region, General Plan 2030 would not have a significant cumulative water quality impact.

General Plan 2030 would minimize potential drainage and flooding impacts. However, the proposed project would contribute to development in levee and dam inundation areas, resulting in a *significant and unavoidable* cumulative impact.

### E. Maximum Theoretical Buildout

The maximum theoretical buildout allowed under General Plan 2030 would include significantly more development than the projected 2030 buildout analyzed in Section D in terms of both the amount and the extent of development. Therefore, the potential for impacts to hydrology and water quality would increase. However, as discussed in Chapter 3, it is extremely unlikely that maximum theoretical buildout would ever occur under General Plan 2030. Therefore, an analysis of maximum theoretical buildout is not required by CEQA.
F. Impacts and Mitigation Measures

Impact HYDRO-1: Although General Plan 2030 polices and actions reduce risks associated with levee failure, they do not eliminate risks to people and property. In addition, recently-adopted policies by FEMA would de-certify a number of levees in Butte County, which indicates that larger areas of Butte County are subject to levee inundation than realized under previous policies.

As discussed in Section D.1,h, above, it is not within Butte County’s power to require or complete maintenance and improvements to levees in the county owned and maintained by private individuals and other public agencies. Therefore, the impact is considered significant and unavoidable.

Impact HYDRO-2: Although General Plan 2030 polices and actions reduce risks associated with dam failure, they do not eliminate risks to people and property.

As discussed in Section D.1,h, above, it is not within Butte County’s power to require or complete maintenance and improvements to dams in and around the county owned and maintained by other agencies. Therefore, the impact is considered significant and unavoidable.

Impact HYDRO-3: General Plan 2030 would contribute to development in levee and dam inundation areas, resulting in a significant cumulative impact.

It is not within Butte County’s power to require or complete maintenance and improvements to levees or dams in the county owned and maintained by private individuals and other public agencies. Therefore, the impact is considered significant and unavoidable.
This chapter discusses land uses in Butte County and evaluates the potential land use impacts associated with General Plan 2030 and the Airport Land Use Compatibility Plan (ALUCP) override. The following evaluation assesses physical divisions of communities, conflicts with land use plans, and conflicting land uses resulting from the spatial location of development that would be allowed by General Plan 2030.

A. Regulatory Framework

This section summarizes key federal, State, County, and municipal plans, policies, and regulations pertaining to land use in Butte County.

1. Federal Plans

a. United States Forest Service Plans

The United States Forest Service is a major landowner in Butte County. Its holdings total 135,427 acres in the county, including portions of Plumas National Forest and Lassen National Forest, which are displayed in Figure 4.9-1. The Forest Service’s Land and Resource Management Plans for Plumas National Forest (1988) and for Lassen National Forest (1993, as amended) guide all Forest Service activities on these lands.

b. Bureau of Land Management Plans

The United States Bureau of Land Management (BLM) owns 16,832 acres in Butte County, consisting of scattered foothill lands, displayed in Figure 4.9-1. BLM completed a draft Resource Management Plan (RMP) in 1990, and the


Source: Butte County GIS, 2009.
final Record of Decision was completed in June 1993. The BLM Redding Field Office has no plans to update the RMP at this time.³

The existing RMP is a 15-year strategy on where and how BLM will administer public lands within the Redding Resource area, which includes Butte County. The RMP has allowed for shifts in BLM public land ownership patterns of scattered parcels to combine into larger aggregates of accessible and useful public lands. The majority of land sales, exchanges, and interjurisdictional transfers between other agencies and organizations have taken place in Tehama and Trinity Counties. The goal of the RMP is to ensure that land sales, exchanges, and transfers meet the BLM’s long term objectives for land preservation.

2. State Plans
The State of California manages significant land resources in the county through a variety of planning documents. State-owned lands, displayed in Figure 4.9-1, include the Lake Oroville State Recreation Area (42,000 acres), Thermalito Forebay/Afterbay (5,230 acres), Oroville Wildlife Area (5,500 acres), Gray Lodge Wildlife Area (8,375 acres), Table Mountain Ecological Reserve (7,100 acres), Sacramento River Wildlife Area, and over 750 miles of rivers and streams. Plans for State-owned lands include the following:

♦ **Lake Oroville State Recreation Area General Plan** addresses resource management, site development, and the provision of recreational facilities at the Lake Oroville State Recreation Area by the State Parks Department.

♦ **State Water Plan Update 2009** addresses land use, planning, and operations management by the Department of Water Resources for the State Water Project, which includes the Thermalito Forebay/Afterbay.

♦ **Land Management Plans** for wildlife areas and ecological reserves.

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3. Butte County Plans, Policies and Regulations

a. Butte County Airport Land Use Compatibility Plan

On December 20, 2000, the Butte County Airport Land Use Commission (ALUC) adopted the Butte County Airport Land Use Compatibility Plan (ALUCP), although it was not adopted by the Board of Supervisors. It establishes procedures and criteria for the ALUC to review proposed land use development and affected municipalities for compatibility with airport activity. State law requires public access airports to develop comprehensive land use plans, designating airport vicinity land use and clear zones. Such plans are to be adopted by the County’s ALUC, which includes two members appointed by the municipalities, two members appointed by the airport managers, two members appointed by the County Board of Supervisors and one member from the public-at-large appointed by the ALUC.

The Butte County ALUCP is distinct from airport master plans, which address planning issues within a specific airport. The purpose of a compatibility plan is to ensure that incompatible development does not occur on lands surrounding the airport. The 2000 ALUCP encompasses the four largest airports in the county: Chico Municipal Airport, Oroville Municipal Airport, Paradise Skypark Airport and Ranchaero Airport.

b. Butte Regional Habitat Conservation Plan and Natural Community Conservation Plan

The County is currently participating in a comprehensive conservation planning effort that includes the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP). Coordinated by the Butte County Association of Governments (BCAG), the Butte Regional HCP/NCCP is an assessment of the county’s natural resources and a strategy for protecting those resources while allowing for future growth and development in Butte County. The Butte Regional HCP/NCCP focuses on the western half of the county, where there is the greatest conflict between urban development and federal and State protected species. The goals of the Butte Regional HCP/NCCP include mapping the range of federal- and State-protected species, important habitats, and ecosystems; providing for the re-
covery of endangered species; and allowing for a streamlined process of environmental permitting. Since the summer of 2007, two of the five phases of the Butte Regional HCP/NCCP have been completed with a final project completion date expected in mid-2011.

4. Municipal General Plans
Butte County contains five incorporated municipalities: Biggs, Chico, Gridley, Oroville, and Paradise. Each municipality has adopted a general plan guiding development within its limits and larger planning area. The following discussion briefly summarizes the provisions of each municipal general plan.

a. City of Biggs
The City of Biggs adopted its current General Plan in November 1998. The 1998 General Plan covers a planning period through 2015. The Plan prescribes land uses for the area within the city limits and Sphere of Influence (SOI), which was adjusted by LAFCO in 1994. A primary land use goal of the General Plan is to “maintain and promote the qualities which make Biggs a desirable community.” In addition, economic development is a guiding principle throughout the 1998 Biggs General Plan. The City is currently pursuing another update to the General Plan and an amendment to its SOI boundary. One of the goals of the General Plan Update is to increase retail, industrial, and office uses to increase employment opportunities.

b. City of Chico
The City of Chico adopted its current General Plan in November 1994, with an update in February 1999. The Plan’s guiding policies are to promote orderly and balanced growth, promote infill development, ensure a long-term compact urban form, maintain long-term boundaries between urban and agricultural/rural uses and ensure consistency between the General Plan and im-

\[4\] City of Biggs, 1997, City of Biggs General Plan, page 1-7.
plementing ordinances and regulations. The City is currently updating its General Plan, which will cover a planning period through 2030.

c. City of Gridley
The City of Gridley General Plan consists of nine elements that were recently adopted in December 2009, and covers a planning period through 2030. The Plan designates land uses within the city limits and primary SOI, and includes policies that promote a safe and healthy living environment, provide adequate and well-maintained public facilities and services, maintain a rural atmosphere, preserve agricultural land, provide jobs, maintain the quality of life, and minimize restrictions on the use of private property.

d. City of Oroville
The City of Oroville adopted an updated General Plan in June 2009. The guiding principles of the Oroville 2030 General Plan address livability, enhanced mobility, a vibrant local economy, natural resources and the environment, recreation, community infrastructure, health and safety, and an involved citizenry.

e. Town of Paradise
The General Plan for the Town of Paradise was adopted in 1994. Key land use policies of the General Plan address physical constraints of the region, such as topography and soils; the need for a specific plan for a planning area south of the town limits; the Butte County urban reserve area; and the need to consider annexation of the undeveloped area between Neal Road and the Feather River.

B. Existing Conditions

This section provides an overview of the existing land use pattern in unincorporated Butte County, based on data provided by the Butte County Asses-

5 City of Chico, November 1994 (updated 1999), City of Chico General Plan, pages 10 to 11.
sor’s Office and BCAG in 2008. Table 4.9-1 shows the acreages of various existing land uses in the unincorporated county, while Figure 4.9-2 illustrates existing land uses.

1. Existing Land Uses
   a. Agriculture
   Agriculture is the dominant land use within unincorporated Butte County, accounting for approximately 599,040 acres (60 percent of the county’s area) spread across the county. Agricultural lands include field and row crops, orchards, rice, grazing, dry farming and timber.

   b. Single-Family Residential
   Most households in unincorporated Butte County are in single-family dwelling units. Single-family units are dispersed throughout the unincorporated county, with approximately 30,000 units on 117,210 acres (10 percent of the county’s area). This acreage includes large parcels that have only one house on them.

   c. Multi-Family Residential
   Multi-family residential development includes any housing type with more than one unit in a building, including duplexes, triplexes, fourplexes, apartment buildings and condominiums. Approximately 5,000 multi-family units are interspersed throughout much of the same residential areas as the single-family units, although they are built on only 9,700 acres (1 percent of the county’s area).

   d. Commercial and Office
   Commercial uses include retail, office, service and lodging uses. There are 4,140 acres of land (0.4 percent of the county’s area) within the unincorporated county in commercial use. Commercial and office uses are concentrated near the municipalities and in unincorporated communities.

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e. Industrial
Existing industrial uses include light manufacturing, heavy industrial, service and repair, processing, and warehousing, as well as industrial uses related to timber, oil, and gas rights. Currently there are approximately 1,400 acres (0.1 percent of the county’s area) in industrial use within the unincorporated county. Industrial uses are primarily located near the municipalities, along major transportation corridors, and in timber-producing regions.

f. Public/Quasi-Public
The Public/Quasi-Public category encompasses several types of uses, including parcels owned by federal, State, County, and municipal agencies; parcels owned by special districts; and parcels that accommodate civic and institutional uses such as churches, hospitals, and utilities. Public and quasi-public uses account for approximately 178,400 acres (15 percent of the county’s area) within the unincorporated county.

TABLE 4.9-1  ACREAGE OF EXISTING LAND USES

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>599,040</td>
</tr>
<tr>
<td>Residential – Single-Family</td>
<td>117,210</td>
</tr>
<tr>
<td>Residential – Multi-Family</td>
<td>9,700</td>
</tr>
<tr>
<td>Commercial and Office</td>
<td>4,140</td>
</tr>
<tr>
<td>Industrial</td>
<td>1,400</td>
</tr>
<tr>
<td>Public/Quasi-Public</td>
<td>178,400</td>
</tr>
<tr>
<td>Tribal Lands</td>
<td>400</td>
</tr>
<tr>
<td>Vacant</td>
<td>93,800</td>
</tr>
<tr>
<td>Undefined</td>
<td>26,820</td>
</tr>
<tr>
<td>Total</td>
<td>1,030,910</td>
</tr>
</tbody>
</table>

Source: Butte County GIS, 2009.
EXISTING LAND USE

Source: Butte County GIS, 2009.
g. Tribal Lands
There are two tribal reserves in Butte County comprising approximately 400 acres in the Oroville area. Both reserves are anchored by casinos. Gold Country Casino occupies about 90 acres located off of Olive Highway and is operated by the Tyme Maidu of Berry-Creek Rancheria. The Feather Falls Casino and tribal reserve lands occupy over 300 acres off Ophir Road. The casino is operated by the Concow Maidu of Mooretown Rancheria.

h. Vacant Land
Defined as land with no structure or building improvement and that is not used for active agricultural production, vacant land is distributed throughout the county and comprises 93,800 acres (10 percent of unincorporated Butte County). The average vacant parcel size is approximately 10 acres.

2. Existing Butte County General Plan
This section describes the land use designations in the existing Butte County General Plan, which would be updated and replaced by the proposed General Plan 2030.

The existing Butte County General Plan consists of a collection of eleven elements that have been variously adopted between 1971 and 2004. Since its initial adoption, portions of the existing General Plan have been amended and supplemented. Portions of the Plan have also been superseded by the adoption of area plans and updates to existing elements. The existing General Plan complies with State General Plan requirements (Government Code Section 65300 et seq.) and related State mandates.

All development in the unincorporated county must conform to the land use designations outlined in the existing General Plan. Goals, policies and programs contained in the Land Use Element of the existing General Plan provide additional direction on how the various land use designations should be developed. Per State law, the County’s General Plan is the primary planning document and all other County plans and policies must be consistent with the adopted General Plan.
The existing Land Use Element sets forth 14 land use designations that are applied to unincorporated areas of the county. As shown in Figure 4.9-3, most of the unincorporated eastern third of the county is designated Timber Mountain, while most of the unincorporated area in the central part of the county is designated Grazing and Open Land. The unincorporated western part of the county is primarily designated Orchard and Field Crops.

For each land use category, the Land Use Element describes applicable principles and standards, including primary and secondary uses (i.e. other uses that are similar, compatible or necessary to the primary use), site designation criteria (i.e. preferred site attributes for that category), intensity of use (i.e. limitations on parcel size, residential densities and other factors), zoning districts consistent with the land use category, and factors to be considered in determining the appropriate zoning classification. Table 4.9-2 lists the 14 land use categories in the existing Land Use Element, along with the primary allowable land uses for each designation.

3. Existing Area Plans
The “area plan” concept of the existing General Plan was initiated through the adoption of the Land Use Element in 1979 as a means to supplement the broader, county-wide land use and policy framework of the General Plan, and to provide more fine-grained guidance reflective of the unique issues and physical, environmental and social diversity in various parts of the county.

The County’s area plans are not separate documents; rather, they consist of policies applicable to a specific planning area that are written within the existing Land Use Element. These policies provide extra detail beyond what the General Plan was designed to accomplish and supplement and provide more specific direction to these various planning areas.
### Table 4.9-2  **Summary of Existing Land Use Designations**

<table>
<thead>
<tr>
<th>Land Use Designation</th>
<th>Symbol</th>
<th>Primary Land Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orchard and Field Crops</td>
<td>OFC</td>
<td>Cultivation, harvest, storage, processing, sale and distribution of all plant crops, especially annual food crops.</td>
</tr>
<tr>
<td>Grazing and Open Land</td>
<td>GOL</td>
<td>Livestock grazing, animal husbandry, intense animal uses and animal matter processing.</td>
</tr>
<tr>
<td>Timber-Mountain</td>
<td>TM</td>
<td>Forest management and the harvesting and processing of forest products.</td>
</tr>
<tr>
<td>Agricultural Residential</td>
<td>AR</td>
<td>Agricultural uses and single-family dwellings at rural densities.</td>
</tr>
<tr>
<td>Foothill Area Residential</td>
<td>FAR</td>
<td>Single-family dwellings at rural densities.</td>
</tr>
<tr>
<td>Low Density Residential</td>
<td>LDR</td>
<td>Detached single-family dwellings at urban densities.</td>
</tr>
<tr>
<td>Medium Density Residential</td>
<td>MDR</td>
<td>A mixture of urban residential uses, including detached single-family homes, condominiums, multiple-dwelling structures, mobile home parks, group quarters, and care homes.</td>
</tr>
<tr>
<td>High Density Residential</td>
<td>HDR</td>
<td>Higher-density urban residential uses, including condominiums, multiple-dwelling structures, mobile home parks, group quarters, and care homes.</td>
</tr>
<tr>
<td>Commercial</td>
<td>C</td>
<td>Structures and activities providing a full range of merchandise and services to the general public.</td>
</tr>
<tr>
<td>Industrial</td>
<td>I</td>
<td>Processing, manufacturing, packaging, storage, and distribution of goods and commodities.</td>
</tr>
<tr>
<td>Research &amp; Business Park</td>
<td>RBP</td>
<td>Narrowly defined uses to assure compatibility between uses. Industrial uses limited to those manufacturers engaged in the production of low volume, high value products, particularly advanced technology products. Businesses requiring outdoor production and storage are prohibited. Following is a partial, representative listing of the primary permitted uses:</td>
</tr>
</tbody>
</table>

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4.9-15
### Table 4.9-2  **Summary of Existing Land Use Designations** (CONTINUED)

<table>
<thead>
<tr>
<th>Land Use Designation</th>
<th>Symbol</th>
<th>Primary Land Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public</strong></td>
<td>P</td>
<td>Large facilities owned and operated by government agencies, including schools, colleges, airports, dams and reservoirs, disposal sites, recreation facilities, conservation areas, fire stations, and other government buildings and property.</td>
</tr>
<tr>
<td><strong>Sports and Entertainment</strong></td>
<td>SE</td>
<td>Examples of uses that are considered appropriate under this classification include, but are not limited to: golf courses; amphitheaters for use as open air entertainment facilities; eating and drinking establishments; food and beverage sales; vehicle repair services; gasoline service stations; public buildings; hotels and motels; offices; RV parks.</td>
</tr>
<tr>
<td><strong>Solid Waste Management Facility Combining Designation</strong></td>
<td>N/A</td>
<td>Uses that are accessory and/or related to solid waste and/or septage disposal.</td>
</tr>
</tbody>
</table>

*The Research & Business Park and Solid Waste Management Facility Combining Designations have not been applied on the existing General Plan land use map.*
The following is the list of Butte County’s area plans:

<table>
<thead>
<tr>
<th>Area Plan</th>
<th>Date Adopted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paradise Urban Reserve</td>
<td>1981</td>
</tr>
<tr>
<td>Chico</td>
<td>1982</td>
</tr>
<tr>
<td>Oroville</td>
<td>1984</td>
</tr>
<tr>
<td>Gridley-Biggs</td>
<td>1986</td>
</tr>
<tr>
<td>Durham-Dayton-Nelson</td>
<td>1992</td>
</tr>
<tr>
<td>Concow*</td>
<td>1982</td>
</tr>
<tr>
<td>Palermo/Honcut*</td>
<td>1990</td>
</tr>
<tr>
<td>Butte Meadows</td>
<td>Not completed</td>
</tr>
<tr>
<td>Forest Ranch</td>
<td>Not completed</td>
</tr>
<tr>
<td>Richvale</td>
<td>Not completed</td>
</tr>
<tr>
<td>Bangor</td>
<td>Not completed</td>
</tr>
<tr>
<td>Stirling City</td>
<td>Not completed</td>
</tr>
</tbody>
</table>

* Area plan maps were integrated into the Countywide Land Use Map; no separate policies were adopted.

In most cases, policies specific to each area were adopted along with maps. However, the Concow and Palermo/Honcut Area Plans are exceptions with no separate policies adopted. For the communities of Butte Meadows, Forest Ranch, Richvale, Bangor and Stirling City, the County’s existing Land Use Element diagram (1979) applies, since the area plans for these communities were not completed.

A special circumstance exists for the Cohasset-Forest Ranch area. While this area does not have an adopted area plan, specific development policies for the Cohasset-Forest Ranch area are incorporated into Title 24, Butte County Zoning Code, which are described in Section B.3.h below.
The following discussion briefly summarizes the existing area plans.

a. Paradise Urban Reserve Area Land Use Plan
The Paradise Urban Reserve Area Land Use Plan, adopted in 1981, recognizes the development constraints created by the canyons surrounding the South Paradise Area, adjacent to the Town of Paradise. The Plan designates this area an urban reserve and establishes accompanying policies. Specifically, rural residential development may occur on parcels 40 acres or larger in areas designated by the California Department of Fish and Game as “No Development Zones” for protection of critical deer herd winter ranges, and on parcels 20 acres or larger in all other parts of the Urban Reserve until they are needed for development and adequate services are available. The Area Plan also calls for coordination of County land use policy, zoning and subdivision regulations with the Town of Paradise and any other service districts within whose jurisdiction the urban reserve falls.

b. Chico Area Plan
The Chico Area Land Use Plan establishes the Chico Greenline. The Greenline constitutes the boundary between urban and agricultural uses on the western side of the Chico urban area. First formed in 1982, the Greenline was further refined in 1990, with the adoption of the Chico Area Land Use Plan. The Plan states that all land use on the “agricultural side” of the Greenline “shall consist solely of Agricultural land uses as provided by the Orchard and Field Crop designation.” Agricultural Residential land uses are also permitted on the agricultural side of the Greenline, where so designated by the Chico Area Land Use Plan. The Plan further states that land uses on the urban side of the Greenline “shall be guided by the policies of the Land Use Element and the applicable urban land use designation contained in the Land Use Element.”

The Plan also established Urban Reserve policies for the Highway 32 corridor, which passes through eastern Chico. However, all of the parcels within this Urban Reserve Area have since been annexed to the City of Chico, and
policies for this area are thus no longer applicable, since they fall under City, rather than County jurisdiction.

c. Oroville Area Plan
The Oroville Area Plan, adopted in 1984, covers unincorporated land adjacent to the City of Oroville, including the Thermalito area, and the Wyman Ravine area to the southeast of the city. Development in the area surrounding Wyman Ravine, designated Low Density Residential, is constrained by a lack of water and sewer services, downstream flood hazards, drainage and circulation. Therefore, the Plan establishes urban reserve policies for the approximately 2,000 acres south and east of the Wyman Ravine:

♦ This area shall be managed as an urban reserve, permitting rural residential development and uses on parcels of not less than 10 acres.

♦ Plans for the extension of sewers, water, circulation and means to control downstream flooding shall be developed before development and uses on parcels of less than 10 acres are permitted.

Recognizing that the constraints to development included in the policy statements above will only partially address the drainage problems in the Wyman Ravine watershed and have no effect in the Thermalito area, the Plan establishes a policy for the Wyman Ravine watershed and Thermalito basin that requires development in these areas “which significantly increases runoff from pre-development levels... to annex to (or from) the appropriate district formed for drainage or retain the increased runoff onsite using appropriate techniques.”

The Area Plan also addresses traffic problems in the region. Highway 162 provides the main access route for residents east of Oroville to and through the planning area, and traffic forecasts completed at the time of the Area Plan adoption indicated that congestion will become extreme as development proceeds east along this highway. To avoid further contribution to projected traffic congestion, the following polices are applicable within the planning area:
Residential development at relatively higher densities (High, Medium and Low; R-3, R-2, and R-1 zones) should be emphasized and encouraged in the area south of Oroville between Oroville and Palermo adjacent to the community’s planned industrial district.

Urban development should be coordinated with the simultaneous provision of east-west collectors. Planning in the area should recognize the need for road improvements to increase the carrying capacity of Lincoln Boulevard.

The Plan’s other policy specifically deals with access issues for Highway 70, and is dependent on the financing of a frontage road and single central ingress-egress point and turn lanes. Opportunities may exist to coordinate this effort with Yuba County and Caltrans.

d. Gridley-Biggs Area Plan
The Gridley-Biggs Area Plan, adopted in August 1986, addresses the period through the year 2000. The intent of the Plan is to regulate the conversion of agricultural land to urban uses in the planning area, which includes and is surrounded by valuable agricultural lands. The Plan calls for City-County coordination of land use, zoning, and subdivision regulation in the plan area, and establishes an urban reserve designation for the planning area within the City of Gridley’s SOI. However, since the Plan’s adoption, land use designations within the City of Gridley’s SOI have been amended to allow for urban development, thus requiring modifications to the urban reserve designation and policies.

e. Durham-Dayton-Nelson Area Plan
The Durham-Dayton-Nelson Area Plan, adopted in 1992, covers the unincorporated communities of Durham, Dayton and Nelson in west-central Butte County. The Plan establishes area-wide land use policies and designates the area as an urban reserve. Policies for the area include a restriction on rural residential development to parcels of 3 acres or more, until such time as it is determined the area is “needed for development,” and adequate services are available to serve that development.
f. Concow Area Land Use Plan
The Concow Area Land Use Plan was adopted in August 1982 to address the Concow/Big Bend/Jarbo Gap area, east of the Town of Paradise. A General Plan amendment and rezoning was adopted for this area, including a map and text amendment to the Land Use Element to create a new land use category, Foothill Area Residential, which allows single-family dwellings at rural densities with minimum parcel sizes ranging from 1 to 40 acres. The revised Area Plan maps are integrated into the overall Countywide General Plan Land Use Map, and no separate policies for this area were adopted.

While the Concow Area Land Use Plan map designates the majority of the planning area as Timber-Mountain, with a minimum parcel size of 40 acres, a number of large areas in the southern portion of the planning area are designated Foothill Area Residential. The Land Use Plan also provides for pockets of commercial, industrial and low-density residential uses near the Concow reservoir and the Feather River.

g. Palermo/Honcut Area Land Use Plan
The Palermo/Honcut Area Land Use Plan was adopted in 1990 for the Palermo and Honcut areas southeast of Oroville. Like the Concow Area Land Use Plan, area plan maps were integrated into the Countywide Land Use Map and no separate policies were adopted.

h. Cohasset-Forest Ranch Area
Special development policies, standards and implementation measures for the Cohasset portion of the Cohasset-Forest Ranch Planning Area were incorporated into the Butte County Zoning Ordinance in May 1986. The purposes of these special development standards are to:

♦ Provide in written form the guidelines for responsible development in the Cohasset Planning Area.

♦ Mitigate environmental concerns peculiar to the foothill character of the Cohasset Planning Area.

♦ Identify areas which are more suitable for development and identify areas with serious environmental concerns.
♦ Prevent significant environmental degradation within the Cohasset Planning Area.

These general goals are supported by policies which focus on septic tanks, wells, housing construction, erosion, drainage, geologically hazardous building sites and fire safety for all new development.

i. Specific Plans
A specific plan is fundamentally a tool for the “systematic implementation” of a general plan, typically within a defined area. Because the General Plan must address policy issues on a broad scale throughout the agency’s jurisdiction, it lacks specificity in order to deal with the needs of a smaller area. Although the specific plan must be consistent with the General Plan, it can address infrastructure, land use and financial issues in a more appropriately focused and detailed manner.

Specific plans represent an opportunity for a local government to protect environmental resources and implement the General Plan for an identified area of the community. A specific plan contains the regulations, conditions, programs and legislation necessary to implement each of the seven mandated elements of the General Plan. It offers a unique opportunity to combine zoning regulations, capital improvement programs, detailed site development standards and other regulatory schemes into one document tailored to the needs of a particular area.

There are two specific plans in Butte County: the Stringtown Mountain Specific Plan and the North Chico Specific Plan. A third specific plan completed for East Avenue in Chico is now under the City’s jurisdiction. The two specific plans are described below:

♦ Stringtown Mountain Specific Plan. This Plan was adopted in September 1994 and addresses design criteria and development standards for the future development of a health resort and residential community in the foothills east of Oroville, at Highway 162 and Forbestown Road. The development foreseen in the Plan has encountered obstacles to its imple-
mentation, primarily due to issues of with provision of sewer service. The proponent is working to overcome these constraints and develop the project. As explained in Section D.5.f of Chapter 3, Project Description, of this EIR, General Plan 2030 includes a Specific Plan Overlay that covers both the area of the existing Stringtown Mountain Specific Plan, as well as a larger geographic area that would be added to the plan in the future to encompass additional development.

♦ North Chico Specific Plan. This Plan was adopted in January 1995 and encompasses 3,590 acres bounded by Sycamore Creek to the south, Highway 99 to the west, Rock Creek to the north and the Chico Municipal Airport to the east. The Board of Supervisors initiated the preparation of the Plan to comprehensively respond to development proposals and incorporate them into a concept of land use for the area, while evaluating and providing for area-wide solutions to drainage, circulation and provision of public services. Although development impact fees have been adopted to help fund various improvements within the Plan area, the funding mechanisms necessary to pay for all needed infrastructure have yet to be established. As explained in Section D.4.a of Chapter 3, Project Description, General Plan 2030 includes an Existing Specific Plan Overlay that recognizes the existence of the North Chico Specific Plan and carries its policies forward.

j. Chapman/Mulberry Neighborhood Plan
In addition to the area plans and specific plans described above, a neighborhood plan was adopted in 1999 for the Chapman/Mulberry area, which includes two unincorporated “islands” located within the Chico Urban Area. The purpose of this Plan is to preserve and enhance the single-family residential character of the neighborhood core and to promote the neighborhood’s revitalization.

The Plan includes modifications to zoning for the Plan 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 plan-
ning strips. The zoning ordinance was modified to create a C/M (Chap-
man/Mulberry Combining) Zone, which is applied as an overlay in the Plan
area. This zone includes design standards that focus on orienting homes to-
ward 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.

4. Zoning Ordinance
The Butte County Zoning Ordinance, approved January 1995, sets forth zon-
ing regulations for the unincorporated areas of the county. The Zoning Or-
dinance regulates land uses, building heights, setbacks, provision of open
space, and other factors that relate to development on individual properties.

Under State law, cities and counties have broad latitude in establishing zoning
standards and procedures. One key requirement, however, is that zoning
regulations be consistent with the General Plan.

Figure 4.9-4 provides a map of the existing zoning districts. The following is
a brief summary of the primary zoning categories and their general standards.

provide for agricultural uses. Permitted uses include one single-family
dwelling per parcel, agricultural uses, and housing facilities for agricul-
tural employees. Minimum lot acreages correspond to the suffix of the A
zone; for example, the minimum lot size in the A-5 zone is 5 acres.

♦ Timber Mountain Zones (TM-1, TM-2, TM-2½, TM-3, TM-5, TM-10,
TM-20, TM-40, TM-160). The Timber Mountain zones permit “man-
agement, raising, harvesting and removal of trees, shrubs, seedlings, flow-
ers, herbs and all food crops for human or animal consumption.” Other
permitted uses include one single-family dwelling per parcel, animal-
keeping, and prospecting, claiming, drilling, mining, excavating and
dredging of mineral, hydrocarbon and geothermal resources. Residential
uses at higher densities (e.g. labor camps, commercial guest lodging and
group quarters) are conditionally permitted. Minimum lot acreages cor-
respond to the suffix of the TM zone.
Natural Resource Zones
- Timber Preserve
- Open Space
- Resource Conservation
- Scenic Highway

Residential Zones
- Residential (R-1, R-2, R-3, R-4, R-N, RT-1, R-½, RT-1-A, R-P, M-R)
- Suburban Residential (S-R, SR-½, SR-1, SR-3, SR-5)
- Mountain or Recreation Subdivision Residential
- Mobile Home Park

Commercial and Industrial Zones
- Commercial (C-1, C-2, C-C, C-N)
- Highway Commercial
- Business Professional
- Commercial Forestry
- Sports & Entertainment
- Industrial (I-1, I-1-M, I-1-M-2)

Other Zones
- Public, Quasi-Public
- Planned Unit Development
- Airport Zone
- Unclassified

Source: Butte County GIS, 2009.

FIGURE 4.9-4
EXISTING ZONING MAP

BUTTE COUNTY GENERAL PLAN 2030
DRAFT EIR
LAND USE
♦ Foothill Recreational Zones (FR-1, FR-2, FR-3, FR-5, FR-10, FR-20, FR-40, FR-160). These zones apply to foothill areas of the county, and allow single-family dwellings, agricultural uses, mining and excavating, and pedestrian, equestrian and bicycle trails. The FR zones also permit uses for “protection of land and forests from fire, erosion, floods, slides, quakes, insects, diseases and pollution,” including arboretums and natural, experimental and study areas. The suffix of each FR zone specifies the minimum lot area in acres.

♦ Agricultural-Residential Zones (AR, AR-½, AR-1, AR-2½, AR-5, AR-10, AR-MH, A-SR). These zones permit residential uses at varying lot sizes and densities. The suffix of the zoning district indicates the minimum lot acreage. Single-family dwellings and agricultural uses are permitted in these zones. Duplexes and multi-family dwellings are conditionally permitted, except in the AR-MH (Agricultural-Residential-Mobile Home) and A-SR (Agricultural-Suburban Residential) zones, where they are prohibited.

♦ Suburban Residential Zones (S-R, SR-½, SR-1, SR-3, SR-5). The Suburban Residential zones permit single-family homes on lots ranging in size from a general minimum of 8,125 square feet (in the S-R zone) to 5 acres (in the SR-5 zone). These zones also permit agricultural uses.

♦ Residential Zones (R-1, R-2, R-3, R-4, R-N, RT-1, R-½, RT-1-A, R-P, M-R). These zones permit residential uses at varying densities. The highest residential density permitted is one dwelling unit per 2,150 square feet of lot area, in the R-4 zone. The RT zone also permits mobile homes at specified minimum densities. The R-P (Residential-Professional Office) zone permits offices in addition to single-family dwelling units. The M-R (Mountain or Recreation Subdivision - Residential) zone permits agricultural uses, arboretums and mining, along with single-family dwellings.

♦ Commercial Zones (C-1, C-2, C-C, C-F, H-C, N-C). These zones (Light Commercial, General Commercial, Community Commercial, Commercial Forestry, Highway Commercial and Neighborhood Commercial, respectively) allow various types of retail and other commercial
uses. Except for the C-F zone, these zones also permit specified types of residential uses. The C-F zone is intended primarily for commercial logging and wood processing uses.

♦ Sports & Entertainment Zone. This zone allows sports facilities, amphitheaters, theaters, golf courses, commercial uses, hotel, RV parks, and water parks.

♦ Research & Business Park Zone (RBP). The RBP zone is initiated on a case by case basis by a property owner. Primary uses in this zone include research and development, business and professional corporate headquarters, and light industrial and manufacturing geared toward high and advanced technology. Site development standards include extensive landscaping, open space and recreational opportunities. The RBP zone has not been implemented within the county.

♦ Industrial Zones (L-I, M-1, M-2). These zoning districts (Limited Industrial, Light Industrial and Heavy Industrial, respectively) permit varying intensities of manufacturing uses, including assembly, processing, fabricating, refining, repairing, packaging and treatment, as well as warehouse storage and distribution.

♦ Resource Protection Zones (R-C, S-H, TPZ-160, WP). The R-C (Resource Conservation) zone encompasses natural, wilderness and study areas; native fish, bird and wildlife preserves; water resource areas; archaeological and historical sites; agriculture; and recreational uses. The S-H (Scenic Highway) zone protects scenic highways designated by the General Plan. The TPZ-160 (Timber Preserve) zone applies to areas for which a forest management plan has been prepared and that comply with specified State standards regarding timber preserves. The WP (Watershed Protection) zone is an overlay zone (i.e. a zone that is combined with other zoning districts) that allows the County to impose specific regulations for protection of individual watersheds.

♦ Planned Unit Development (PUD). This zone is intended to accompany a master plan and tentative map for a development site. It allows diversification in land uses, structures, lot sizes and open spaces, consis-
tent with the General Plan and subject to County approval of a land use and development plan for the site.

♦ **Mobile Home Park (MHP).** This zone sets standards for mobile home park development, in conjunction with a master development plan for the site.

♦ **Airport Zone (A-Z).** This zone provides for the protection, promotion and development of aeronautics.

♦ **Public, Quasi-Public (P-Q).** This zone is intended exclusively for public facilities such as schools, parks, playgrounds, recreational areas, hospitals and other public buildings.

♦ **Unclassified (U).** This zone is an interim zone intended for areas that have not been specifically zoned. It is a “holding zone” that permits one single-family dwelling per parcel, agricultural uses and buildings, and conditionally permits multiple-family dwellings and commercial uses. The minimum parcel size in the U zone is 20 acres, and any proposed land division of 20 acres or less must first apply for and obtain specific zoning consistent with the General Plan or applicable area or specific plan.

C. **Standards of Significance**

General Plan 2030 and the ALUCP override would have a significant land use impact if they would:

♦ Physically divide an established community.

♦ Conflict with any applicable plan, policy, or regulation of a government agency with jurisdiction over land in unincorporated Butte County that has been adopted for the purpose of avoiding or mitigating an environmental effect.

♦ Create or exacerbate a conflict between land uses.
D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative land use impacts that could occur as a result of implementation of General Plan 2030 and the ALUCP override.

1. Project Impacts

a. Physically divide an established community.

General Plan 2030 is designed as a programmatic document, directing future growth on a countywide level. General Plan 2030 seeks to direct overall countywide development to already urbanized areas, including the SOIs of incorporated communities and within existing unincorporated communities. General Plan 2030 supports municipalities and the unincorporated communities in establishing desired growth patterns.

General Plan 2030 provides for cohesion and connectivity of established communities, and community involvement in development projects. Policy LU-P4.1 promotes and preserves the integrity and stability of existing residential neighborhoods. Policy LU-P3.1 encourages connectivity and a sense of community in all newly developed neighborhoods. Policy LU-P7.3 requires early and frequent communication between sponsors of new development projects and affected citizens and stakeholders.

General Plan 2030 encourages cooperative planning with municipalities. Land Use Element Policy LU-P1.7 directs the County to support and coordinate with planning efforts of the incorporated municipalities. In addition, Policies LU-P11.3 and LU-P11.4 direct County staff to coordinate plan amendments and development projects with applicable municipalities, and Actions LU-A11.1 and LU-A11.2 establish regular meetings between municipalities and the County to discuss planning and land use issues of concern. Furthermore, Action LU-A11.3 directs the County to adopt municipal design regulations within the respective municipality’s SOI. The cooperative planning efforts and consistent standards required by General Plan 2030 policy and actions will help ensure that the project does not divide established communities within municipal planning areas.
General Plan 2030 policies also promote cooperative planning between the County and the residents of the unincorporated communities, providing existing communities with a voice and the tools to maintain cohesive neighborhoods. Policy LU-P1.8 directs the County to support community planning efforts by and for unincorporated communities. Policy LU-P2.3 makes available Butte County staff and materials to assist unincorporated communities with their future planning efforts. Policy LU-P2.4 directs the County to engage willing and interested unincorporated communities in community planning processes to set a community vision and develop area plans.

These proposed policies and actions would ensure that new development would be sensitive to the existing built environment and would unify rather than divide existing communities. As a result of these policies, implementation of General Plan 2030 would result in a less-than-significant impact associated with the physical division of existing communities.

The ALUCP override would itself not physically divide an established community, since the Plan addresses airport land use conflicts and airport safety. Therefore, the ALUCP override would have no impact regarding the physical division of existing communities.

b. Conflict with any applicable plan, policy, or regulation of a government agency with jurisdiction over land in unincorporated Butte County that has been adopted for the purpose of avoiding or mitigating an environmental effect.

This discussion reviews potential conflicts with federal, State, County, and municipal plans with jurisdiction in Butte County, and is organized by each type of plan.

i. Federal Plans

As described in Section A.1, above, the US Forest Service and Bureau of Land Management (BLM) own significant amounts of land in Butte County. Butte County does not have direct regulatory authority over land owned by the federal government. General Plan 2030 would designate most land within the
Plumas and Lassen National Forests as Timber Mountain, with a 160-acre minimum parcel size. Smaller areas surrounding existing communities within the National Forests would be designated Public, Recreation Commercial, Rural Residential, and Foothill Residential. These designations are generally compatible with the range of uses allowed in the National Forests. General Plan Policy COS-P6.1 calls for the County to work with federal agencies on planning for areas with habitat and other natural resources. It also includes policies under Goal COS-11 that are designed to protect timber and the production of timber in the county. In particular, Policy COS-P11.1 supports federal legislation protecting timber resources, and Policies COS-P11.5, COS-P11.6, and COS-P11.7 are designed to protect the productive potential of Timber Production Zone properties.

BLM properties would generally be designated Public, Timber Mountain, or Agriculture in General Plan 2030. These designations are consistent with the types of uses that are allowed on the BLM’s properties. General Plan Policy COS-P6.1 would also be applicable to County coordination with the BLM, including support for the BLM as it works towards its land aggregation goals. General Plan 2030 also includes policies under Goal COS-12 designed to protect mineral extraction, which may be a priority for some BLM properties.

As a result of General Plan 2030 policies, implementation of General Plan 2030 and the ALUCP override would result in a less-than-significant impact in relation to conflicts with federal plans.

ii. State Plans
As described above in Section A.2, the State owns and manages land throughout Butte County. Butte County does not have direct authority over these lands, which would generally be designated for Public, Resource Conservation, Timber Mountain, or Agriculture under General Plan 2030. General Plan 2030 Policy COS-P6.1 would also be applicable to County coordination with the State, allowing the County to work with the State in implementation of the Lake Oroville, State Water Project, and Land Management Plans that guide the State in management of these properties.
As a result of General Plan 2030 policies, implementation of General Plan 2030 and the ALUCP override would result in a less-than-significant impact in relation to conflicts with State plans.

iii. Butte County Plans, Policies and Regulations

Per State law, the General Plan is the primary planning document for the unincorporated county. Once adopted, General Plan 2030 would replace the existing Butte County General Plan.

General Plan 2030 proposes that some of the existing Area, Specific and Neighborhood Plans be maintained and/or incorporated into the General Plan. The Durham-Dayton-Nelson Area Plan, North Chico Specific Plan, Stringtown Mountain Specific Plan and Chapman/Mulberry Neighborhood Plan would remain as stand-alone documents that are separate from the General Plan. As described in Chapter 3, minor modifications to some of these plans are required in order to update the land use designations to reflect those under the proposed General Plan 2030 and to correct some inconsistencies between existing land uses, zoning and the General Plan within Area Plan and Specific Plan areas. In addition, the North Chico Specific Plan would be amended to allow second units in the residential and resource conservation designations, consistent with General Plan 2030 land use designations applied countywide. The existing Paradise Urban Reserve policies would be incorporated into the Paradise Urban Reserve Specific Plan Overlay under the proposed General Plan 2030. The Cohasset Planning Area development policies, standards and implementation measures would be maintained in the existing Zoning Ordinance.

Other Area Plans would be eliminated under the proposed General Plan 2030. Although the Chico Area Greenline would remain, the urban reserve policies under the Chico Area Land Use Plan apply to an area that has been annexed to the City of Chico, and have already been removed from County jurisdiction. The Gridley-Biggs Area Land Use Plan policies would no longer be consistent with the General Plan land use map, and would therefore be eliminated under the proposed Plan. The policies under the Oroville Area
Land Use Plan would no longer be consistent with the General Plan land use map, and would therefore be eliminated. Since the Concow and Palermo/Honcut Area Plans were incorporated into the existing General Plan land use map with no separate policies, they would be replaced by the land use map under the proposed General Plan 2030. As noted in Section A, the Butte Meadows, Forest Ranch, Richvale, Bangor and Stirling City Area Plans were never completed, and are therefore not included in General Plan 2030.

General Plan 2030 includes residential densities that are not consistent with the Airport Land Use Compatibility Zones in the ALUCP. Specifically, General Plan 2030 includes the following inconsistencies with the ALUCP for the Chico Municipal Airport, as shown in Figure 4.9-5:

♦ The Very Low Density Residential (VLDR) General Plan designation is inconsistent with the B1, B2 and C1 Compatibility Zones because it allows greater residential density. THE VLDR designation allows a density up to 1 unit per acre, while the B1 Compatibility Zone requires a minimum 10-acre lot size, and the B2 and C1 Compatibility Zones require a minimum 5-acre lot size.

♦ The VLDR General Plan designation is inconsistent with the C Compatibility Zone, which requires either a minimum 5-acre lot size or four dwelling units per acre density.

♦ The VLDR General Plan designation is inconsistent with the C2 Compatibility Zone because it would not allow sufficient residential density. The C2 Compatibility Zone requires a minimum density of 4 dwelling units per acre, while the VLDR designation would allow a maximum of 1 unit per acre.

General Plan 2030 also includes residential densities that are not consistent with the ALUCP for the Oroville Municipal Airport, as shown in Figure 4.9-6. Specifically, the Rural Residential General Plan and zoning designation, which allows lot sizes up to 5 acres in size, is inconsistent with the B1 Compatibility Zone, which requires a minimum 10-acre lot size.
Airport Compatibility Zone

- **A**: No residential uses allowed
- **B1**: Minimum 10 acre lot
- **B2**: Minimum 5 acre lot
- **C**: Minimum 5 acre lot or 4 dwelling units per acre
- **C1**: Minimum 5 acre lot
- **C2**: Minimum 4 dwelling units per acre
- **D**: No limit on residential densities

ALUCP Incompatibility

Note: Please see Figure 3-3 for General Plan Land Use Designations legend.
Source: Butte County GIS, 2009.
OROVILLE AIRPORT LAND USE COMPATIBILITY

A - No residential uses allowed
B1 - Minimum 10 acre lot
B2 - Minimum 5 acre lot
C - Minimum 5 acre lot or 4 dwelling units per acre
D - No limit on residential densities

ALUCP Incompatibility

Highways
Railroad
Major Roads
City/Town Limits
County Boundary
Sphere of Influence

Note: Please see Figure 3-3 for General Plan Land Use Designations legend.
Source: Butte County GIS, 2009.
General Plan 2030 includes land uses that are not consistent with the ALUCP for the Paradise Skypark Airport, as shown in Figure 4.9-7.

- The Rural Residential General Plan designation extends into the A Compatibility Zone, which prohibits residential uses. However, only a portion of each of the parcels with this designation is within the A Compatibility Zone, and any residential development on the parcels would be required to be constructed outside of the A Compatibility Zone area.

- The Rural Residential General Plan designation is not consistent with the B1 Compatibility Zone. The Rural Residential designation allows up to 1 dwelling unit per 5 acres, while the B1 Compatibility Zone requires a minimum lot size of 10 acres.

- The VLDR General Plan designation is inconsistent with the C Compatibility Zone, which requires either a minimum 5-acre lot size or four dwelling units per acre density.

Finally, General Plan 2030 includes residential densities that are not consistent with the ALUCP for the Ranchaero Airport, as shown in Figure 4.9-8.

- The VLDR, Low Density Residential (LDR), and Medium Density Residential (MDR) General Plan designations are not consistent with the B1 and B2 Compatibility Zones. The VLDR, LDR and MDR designations allow densities up to 1, 3, and 6 units per acre, respectively, while the B1 Compatibility Zone requires a minimum lot size of 10 acres and the B2 Compatibility Zone requires a minimum lot size of 5 acres.

- There are two parcels with the VLDR General Plan designation, which allows a density up to 1 unit per acre, within the C Compatibility Zone. This would be inconsistent with the C Compatibility Zone requirement of either a minimum 5-acre lot size or four dwelling units per acre density.

In addition, the MDR General Plan designation extends into the A Compatibility Zone for the Ranchaero Airport, which prohibits residential uses. However, only a portion of each of the parcels with this designation is within
PARADISE SKYPARK LAND USE COMPATIBILITY

Airport Compatibility Zone

- **A** - No residential uses allowed
- **B1** - Minimum 10 acre lot
- **B2** - Minimum 5 acre lot
- **C** - Minimum 5 acre lot or 4 dwelling units per acre
- **D** - No limit on residential densities

ALUCP Incompatibility

Source: Butte County GIS, 2009.

FIGURE 4.9-7

Note: Please see Figure 3-3 for General Plan Land Use Designations legend.
Source: Butte County GIS, 2009.
Airport Compatibility Zone

- **A** - No residential uses allowed
- **B1** - Minimum 10 acre lot
- **B2** - Minimum 5 acre lot
- **C** - Minimum 5 acre lot or 4 dwelling units per acre
- **D** - No limit on residential densities

ALUCP Incompatibility

Note: Please see Figure 3-3 for General Plan Land Use Designations legend.

Source: Butte County GIS, 2009.
the A Compatibility Zone, so any residential development on the parcels would be required to be constructed outside of the A Compatibility Zone area.

As indicated in Chapter 3, because of these inconsistencies between General Plan 2030 and the ALUCP, an ALUCP override is required. The ALUCP override would recognize the inconsistency with the ALUCP, and allow the County to adopt General Plan 2030.

To make this override possible, General Plan 2030 includes policies that promote consistency with the ALUCP. Policy LU-P12.5 directs the County to consider the ALUCP in General Plan and Zoning decisions, and to be consistent with it where appropriate. Policy LU-P12.6 encourages the ALUC to revise the density requirements in some compatibility zones where there are inconsistencies with the General Plan designations.

General Plan 2030 encourages consistency with other land use plans, policies and regulations. Goal LU-12 and its associated policies direct the County to coordinate planning efforts within the county and region. In particular, Policy LU-P12.1 directs the County to coordinate County government plans and programs so that they are mutually supportive.

To ensure consistency with the Butte Regional HCP/NCCP, Conservation and Open Space Element Action COS-A6.1 directs the County to continue to work with BCAG and the five municipalities to develop and implement the Butte Regional HCP/NCCP, and subsequently update it as necessary.

Much of the areas that conflict with the ALUCP are already parcelized to a density that is similar to the General Plan 2030 designations. Although there are a number of policies and actions that promote consistency with land use plans, policies, and regulations, they would not mitigate the significant impacts from inconsistencies with the ALUCP. Therefore, the impact is significant and unavoidable.
iv. Municipal General Plans

As indicated in Section A, the General Plans for the Cities of Biggs, Chico and Gridley are currently in the process of being updated, while the City of Oroville’s updated General Plan was recently adopted in June 2009. Some of the County’s proposed General Plan designations within the municipal SOIs are not consistent with those of the municipalities. For example, the Oroville 2030 General Plan includes higher density residential designations for the Thermalito area than General Plan 2030, and sets a vision for a specific plan that would allow a greater number of dwelling units and a greater density of development than General Plan 2030 in an area west of the Oroville airport. In addition, the draft land use plan for the City of Chico General Plan Update that is underway includes higher density residential designations than General Plan 2030 in the Bell Muir area, and sets a vision for a new neighborhood in the South Entler area, which is designated for industrial use under General Plan 2030.

However, land outside the city limits but inside the SOI is in the unincorporated county and is subject only to County land use regulations. Since only one set of land use policies apply at any given time, there cannot be a conflict between the County and municipal General Plans. As a result, adoption and implementation of General Plan 2030 would not result in a conflict with municipal land use plans and policies.

Furthermore, a number of policies and actions promote consistency in planning efforts between the County and the municipalities. Policy LU-P1.7 directs the County to support and coordinate with planning efforts of the incorporated municipalities. Policies LU-P11.3 and LU-P11.4 direct County staff to coordinate plan amendments and development projects with applicable municipalities, and Actions LU-A11.1 and LU-A11.2 establish regular meetings between municipalities and the County to discuss planning and land use issues of concern. Furthermore, Action LU-A11.3 directs the County to adopt municipal design regulations within the respective municipality’s SOI.
Therefore, implementation of General Plan 2030 and the ALUCP override would result in a less-than-significant impact in relation to conflicts with municipal plans.

c. Create or exacerbate a conflict between land uses.

General Plan 2030 land use designations include some areas in which traditionally incompatible land use types are positioned immediately adjacent to each other, such as industrial and residential uses. In addition, General Plan 2030 designates some land for uses that may not be compatible with designations within the immediately adjacent municipality. Following is a comparison of the land use designations in General Plan 2030 and the general plan designations for the immediately adjacent portions of the municipalities in the county:

♦ Chico. General Plan 2030 calls for residential, agricultural, industrial, and public uses in the areas of Butte County immediately adjacent to Chico, including unincorporated pockets of the county within the city limits. Within Chico, industrial uses are adjacent to areas designated industrial in General Plan 2030, and residential areas are adjacent to areas designated residential. Some areas at the edge of the city are designated for residential use adjacent to agricultural uses in the county.

♦ Oroville. General Plan 2030 calls for a variety of residential densities, resource conservation, and industrial uses in the areas of Butte County immediately adjacent to Oroville. Within Oroville, the adjacent areas are primarily residential, except for industrial uses that are adjacent to industrial designations in Butte County.

♦ Paradise. General Plan 2030 calls for residential, commercial, agricultural, timber mountain, and resource conservation uses in the areas of Butte County immediately adjacent to Paradise. Residential designations under General Plan 2030 are primarily located adjacent to residential designations within Paradise. Some areas in Paradise are designated for residential use, and one area is designated for commercial use, adjacent to agricultural uses in the county. On the north side of Paradise, there is a commercial designation within the town immediately adjacent to an area
designated residential in the county, and on the south side of Paradise, there is a residential designation within the town immediately adjacent to an area designated commercial in the county.

♦ Gridley. General Plan 2030 calls for residential, agricultural, and industrial uses in the areas of Butte County immediately adjacent to Gridley. Within Gridley, the adjacent areas are primarily low or very low density residential uses. Industrial uses in both jurisdictions are adjacent to one another. Limited commercial uses are called for within Gridley, but these are adjacent to medium high density residential uses within the county.

♦ Biggs. General Plan 2030 calls for residential, agricultural, agriculture service, and industrial uses in the areas of Butte County immediately adjacent to Biggs. Within Biggs, the adjacent areas are primarily low or very low density residential uses where General Plan 2030 calls for residential. The adjacent areas in Biggs are light or heavy industrial in places that are adjacent to agriculture service and industrial uses. A very limited amount of area in Biggs is designated for low density residential use adjacent to agricultural uses in the county. Note that this discussion is based on the Preferred Land Use Alternative map for the 2030 City of Biggs General Plan, which is currently on hold due to budget constraints.

Overall, the majority of the land use designations in General Plan 2030 are consistent with the adjacent land use designations and the adjacent land use designations in the incorporated cities. Although the location of incompatible uses adjacent to one another may increase the potential for land use impacts, the Land Use Element of General Plan 2030 includes policies that address potential land use conflicts and serve to mitigate potential impacts. Policy LU-P5.3 requires the design of industrial uses to avoid adverse impacts to adjacent uses, and Policy LU-P5.2 directs the County to group industrial and heavy commercial uses into integrated industrial parks. In addition, Policy AG-P5.3 requires a buffer on property proposed for residential development adjacent to agricultural uses in order to protect existing agricultural uses from incompatible use conflicts. Also, Action AG-A5.1 directs the County to periodically update the agricultural buffer setback requirements and guidelines.
to reduce conflicts between agricultural and urban uses, including both residential and non-residential urban uses.

General Plan 2030 includes land uses that are not consistent with the ALUCP, and an ALUCP override is required. The land use inconsistencies between General Plan 2030 and the ALUCP are nuisance-related, and discussed fully in D.1.b of this chapter.

As a result of General Plan 2030 policies and the land use map, implementation of General Plan 2030 and the ALUCP override would result in a less-than-significant impact in relation to conflicts between land uses.

2. Cumulative Impacts

Future development allowed by General Plan 2030 would be subject to the policies and actions set forth the Land Use Element, a number of which have been identified in this chapter. Implementation of the policies and actions would mitigate potential land use impacts related to physically dividing established communities and conflicts between land uses, but would not mitigate impacts related to consistency with applicable land use plans due to inconsistencies with the ALUCP.

As noted in Section A.4, Chico is currently updating its General Plan, and the Cities of Oroville and Gridley recently updated their General Plans in 2009. The Oroville 2030 General Plan is consistent with the ALUCP for the Oroville Municipal Airport. The existing Chico General Plan is not consistent with the ALUCP for the Chico Municipal Airport, but the City intends to resolve this inconsistency with the updated General Plan.

Because there are other jurisdictions with General Plans that are not consistent with the ALUCP, General Plan 2030 and the ALUCP override would contribute to a significant and unavoidable cumulative impact.
E. Impacts and Mitigation Measures

Impact LU-1: General Plan 2030 includes residential densities that are inconsistent with the Airport Land Use Compatibility Plan, which necessitates the Airport Land Use Compatibility Plan override.

Much of the areas that are inconsistent with the ALUCP are already parcelized to a density that is similar to the General Plan 2030 designations. General Plan 2030 policies and actions would promote consistency with land use plans, policies, and regulations, but would not mitigate the significant impacts from inconsistencies with the ALUCP. Therefore, the impact is significant and unavoidable.

Impact LU-2: General Plan 2030 and the Chico General Plan include residential densities that are inconsistent with the ALUCP, which necessitates the ALUCP override. This contributes to a significant cumulative impact.

Although General Plan 2030 policies and actions would promote consistency with land use plans, policies, and regulations, they would not mitigate the significant impacts from inconsistency with the ALUCP. Furthermore, decisions of the City of Chico regarding consistency with the ALUCP are outside the control of Butte County. Therefore, this cumulative impact is considered significant and unavoidable.
This chapter discusses noise in Butte County and evaluates the potential noise impacts associated with General Plan 2030 and the Airport Land Use Compatibility Plan (ALUCP) override. The following evaluation is based on both a quantitative and spatial analysis, and assesses human exposure to unacceptable noise levels, generation of unacceptable noise levels, groundborne vibration, and noise from airports.

A. **Regulatory Framework**

This section begins with a discussion of fundamental concepts of environmental acoustics and vibration, followed by a summary of federal, State and local laws, policies and regulations that apply to noise.

1. **Fundamental Concepts of Environmental Acoustics and Vibration**

   Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound can be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

   In addition to the concepts of pitch and loudness, there are several noise measurement scales that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective “noisiness” or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as an approximate dou-
bling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 4.10-1.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level, or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive.

Representative outdoor and indoor noise levels in units of dBA are shown in Table 4.10-2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called $L_{eq}$. The most common averaging period is hourly, but $L_{eq}$ can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Because excessive noise interferes with the ability to sleep, human sensitivity to noise increases during the evening and at night. Therefore, 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Community Noise Equivalent Level (CNEL) is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 p.m. – 10:00 p.m.) and a 10 dB addition to nocturnal (10:00 p.m. – 7:00 a.m.) noise levels. The Day/Night Average Sound Level ($L_{dn}$ or DNL), is essentially the same as CNEL, with the exception that
### Table 4.10-1 Definitions of Acoustical Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decibel, dB</td>
<td>A unit describing the amplitude of sound.</td>
</tr>
<tr>
<td>Frequency, Hz</td>
<td>The number of complete pressure fluctuations per second above and below atmospheric pressure.</td>
</tr>
<tr>
<td>A-Weighted Sound Level, dBA</td>
<td>Decibel level as measured using the A-weighting filter network, which de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear. All sound levels in this report are A-weighted, unless reported otherwise.</td>
</tr>
<tr>
<td>L01, L10, L50, L90</td>
<td>The A-weighted noise levels that are exceeded 1 percent, 10 percent, 50 percent, and 90 percent of the time during the measurement period.</td>
</tr>
<tr>
<td>Equivalent Noise Level, Leq</td>
<td>The average A-weighted noise level during the measurement period.</td>
</tr>
<tr>
<td>Community Noise Equivalent Level, CNEL</td>
<td>The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels to sound levels measured from 7:00 p.m. to 10:00 p.m. and 10 decibels to sound levels measured between 10:00 p.m. and 7:00 a.m.</td>
</tr>
<tr>
<td>Day/Night Noise Level, Ldn or DNL</td>
<td>The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 p.m. and 7:00 a.m.</td>
</tr>
<tr>
<td>Lmax, Lmin</td>
<td>The maximum and minimum A-weighted noise level during the measurement period.</td>
</tr>
<tr>
<td>Ambient Noise Level</td>
<td>The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.</td>
</tr>
<tr>
<td>Intrusive</td>
<td>Noise which exceeds the existing ambient noise at a given location. Relative intrusiveness depends on amplitude, duration, frequency, time of occurrence and tonal or informational content as well as the prevailing ambient noise level.</td>
</tr>
</tbody>
</table>

Source: Jones and Stokes, 2006.
the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors, the thresholds are about 15 dBA higher. Steady noise of sufficient intensity above 35

### Table 4.10-2 Typical Sound Levels

<table>
<thead>
<tr>
<th>Outdoor Sound (Distance from Source)</th>
<th>dBA</th>
<th>Indoor Sound</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Defense Siren (100’)</td>
<td>140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jet Takeoff (200’)</td>
<td>130</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pain Threshold</td>
<td></td>
</tr>
<tr>
<td>Diesel Pile Driver (100’)</td>
<td>110</td>
<td>Rock Music Concert</td>
<td>Very Loud</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boiler Room</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Printing Press Plant</td>
<td></td>
</tr>
<tr>
<td>Freight Cars (50’)</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freight Cars (50’)</td>
<td></td>
</tr>
<tr>
<td>Freeway (100’)</td>
<td>70</td>
<td>In Kitchen With Garbage Disposal Running</td>
<td>Moderately Loud</td>
</tr>
<tr>
<td>Vacuum Cleaner (10’)</td>
<td>60</td>
<td>Data Processing Center</td>
<td></td>
</tr>
<tr>
<td>Light Traffic (100’)</td>
<td>50</td>
<td>Department Store</td>
<td></td>
</tr>
<tr>
<td>Large Transformer (200’)</td>
<td>40</td>
<td>Private Business Office</td>
<td></td>
</tr>
<tr>
<td>Soft Whisper (5’)</td>
<td>30</td>
<td>Quiet Bedroom</td>
<td>Quiet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recordiong Studio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td></td>
<td>Threshold of Hearing</td>
</tr>
</tbody>
</table>

Source: Jones and Stokes, 2006.
dBA and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA L_{dn}.

In situations where traffic noise governs the outdoor noise level, the L_{dn} value is about equal to the loudest hour noise level, which is typically during the day, and about 10 dB higher than the quietest hour noise level, which is typically at night. The California interior noise standard of 45 dBA L_{dn} is designed for sleep and speech protection, and most jurisdictions apply the same criterion for all residential uses.

Typical structural attenuation is about 15 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels at the face of the building are about 60 dBA L_{dn} with open windows and 65 to 70 dBA L_{dn} if the windows are closed. Levels of 55 to 60 dBA are common at land uses located along collector streets and secondary arterials, while 65 to 70 dBA is a typical value for land uses located along a primary or major arterial. Levels as high as 75 to 80 dBA can occur at the first row of development adjacent to a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways typically need to have windows that can be closed with an airtight seal, and bedrooms facing major roadways and freeways typically need acoustically-rated windows.

Attitude surveys are used to gauge community annoyance with noises intruding into homes or affecting outdoor activity areas. Previous attitude surveys have determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. There is disagreement about the relative annoyance of noise caused by aircraft and ground transportation. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 55 dBA L_{dn}. At an L_{dn} of
about 60 dBA, approximately 2 percent of the population is highly annoyed. When the Ldn increases to 70 dBA, the percentage of the population highly annoyed increases to about 12 percent. There is, therefore, an increase of about 1 percent per dBA between an Ldn of 60 to 70 dBA. Between an Ldn of 70 to 80 dBA, the percentage of the population that is highly annoyed increases by about 2 percent with each decibel.

People appear to respond more adversely to aircraft noise. When the Ldn is 60 dBA, approximately 10 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 2 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 3 percent increase in the percentage of the population that is highly annoyed.

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several methods are typically used to quantify the amplitude of vibration, including Peak Particle Velocity (PPV) and Root Mean Square (RMS) velocity. PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. RMS velocity is defined as the average of the squared amplitude of the signal. PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration. Typical sources of ground vibration include trains and dynamic construction equipment such as pile drivers.

Table 4.10-3 displays continuous vibration impacts on human annoyance and on buildings. As discussed previously, annoyance is a subjective measure and vibrations may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying.

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little
4.10-7

Table 4.10-3  Reaction of People and Damage to Buildings at Continuous Vibration Levels

<table>
<thead>
<tr>
<th>Velocity Level, PPV (in/sec)</th>
<th>Human Reaction</th>
<th>Effect on Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.006-0.019</td>
<td>Threshold of perception: Possibility of intrusion</td>
<td>Vibration unlikely to cause damage of any type</td>
</tr>
<tr>
<td>0.08</td>
<td>Vibrations readily perceptible</td>
<td>Recommended upper level of the vibration to which ruins and ancient monuments should be subjected</td>
</tr>
<tr>
<td>0.10</td>
<td>Level at which continuous vibrations begin to annoy people</td>
<td>Virtually no risk of “architectural” damage to normal buildings</td>
</tr>
<tr>
<td>0.20</td>
<td>Vibrations annoying to people in buildings</td>
<td>Threshold at which there is a risk of “architectural” damage to normal dwellings such as plastered walls or ceilings.</td>
</tr>
<tr>
<td>0.50</td>
<td>Vibrations considered unpleasant by people subjected to continuous vibrations</td>
<td>Vibration at this level would cause “architectural” damage and possibly minor structural damage.</td>
</tr>
</tbody>
</table>


Risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction-related groundborne vibration levels. Because of the impulsive nature of such activities, the peak particle velocity descriptor is routinely used to measure and assess ground-borne vibration. It is used almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.
The two primary concerns with vibration, the potential to damage a structure and the potential to reduce quality life, are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.006 to 0.09 inches per second (in/sec), PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as those in an urban environment, may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration detrimental to the building is very rare and has only been observed in instances where construction activity occurs immediately adjacent to a structure that is already at a high state of disrepair.

Railroad train vibration is an example of a vibration that can be annoying to people. Human response to ground vibration has been correlated best with the velocity of the ground. The velocity of the ground is expressed on the decibel scale. The reference velocity is $1 \times 10^{-6}$ in/sec, RMS, which equals 0 vibration decibels (VdB), and 1 in/sec equals 120 VdB. Although not a universally accepted notation, VdB is used in this document to reduce the potential for confusion with sound decibels.

Typical background vibration levels in residential areas are 50 VdB or lower, well below the threshold of perception for most humans. Perceptible vibration levels inside residences are attributed to the operation of heating and air conditioning systems, door slams and foot traffic. Construction activities, train operations, and street traffic are some of the most common external sources of vibration that are perceptible inside residences.

One of the problems with developing suitable criteria for groundborne vibration is the limited research into human response to vibration and, more im-
portantly, human annoyance inside buildings. However, experience with rapid transit systems over the last few decades has resulted in the development of rational vibration limits that can be used to evaluate human annoyance to groundborne vibration. These criteria are primarily based on experience with passenger train operations, such as rapid transit and commuter rail systems. The main difference between passenger and freight operations is the time duration of individual events; a passenger train lasts few seconds, whereas a freight train may last several minutes, depending on speed and length. Although these criteria are based on shorter duration events reflected by passenger trains, they are also used in this assessment to evaluate the potential of vibration annoyance on the site due to large freight trains.

The US Department of Transportation has developed vibration impact assessment criteria for evaluating vibration impacts associated with transit projects. The Federal Transit Administration (FTA) has proposed vibration impact criteria, based on maximum overall levels for a single event. The impact criteria for groundborne vibration are shown in Table 4.10-4. Note that there are criteria for frequent events (more than 70 events of the same source per day), occasional events (30 to 70 vibration events of the same source per day) and infrequent events (less than 30 vibration events of the same source per day).

2. California Building Code
New multi-family housing in the State of California is subject to the environmental noise limits set forth in Appendix Chapter 1208A.8.4 of the California Building Code. The noise limit is a maximum interior noise level of 45 dBA DNL. Where exterior noise levels exceed 60 dBA DNL, a report must be submitted with the building plans describing the noise control measures that have been incorporated into the design of the project to meet the interior noise limit.

3. Butte County Airport Land Use Compatibility Plan
The Butte County Airport Land Use Commission (ALUC) is charged with promoting land use compatibility around the county’s airports, in order to
Table 4.10-4  Railroad Train Groundborne Vibration Impact Criteria

<table>
<thead>
<tr>
<th>Land Use Category(^a) Note, Existing Conditions</th>
<th>Frequent Events(^d)</th>
<th>Occasional Events(^d)</th>
<th>Infrequent Events(^d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1: Buildings where vibration would interfere with interior operations</td>
<td>65 VdB(^d)</td>
<td>65 VdB(^d)</td>
<td>65 VdB(^d)</td>
</tr>
<tr>
<td>Category 2: Residences and buildings where people normally sleep</td>
<td>72 VdB(^b)</td>
<td>75 VdB</td>
<td>80 VdB</td>
</tr>
<tr>
<td>Category 3: Institutional land uses with primarily daytime use</td>
<td>75 VdB</td>
<td>78 VdB</td>
<td>83 VdB</td>
</tr>
</tbody>
</table>

\(^a\) “Frequent Events” is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall in this category.

\(^b\) “Occasional Events” is defined as between 30 and 70 vibration events of the same source per day.

\(^c\) “Infrequent Events” is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.

\(^d\) This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research should always require detailed evaluation to define the acceptable vibration levels. Ensuring low vibration levels in a building requires special design of HVAC systems and stiffened floors.


minimize public exposure to excessive noise and safety hazards. The primary means by which this is accomplished is through the preparation and periodic update of an Airport Land Use Compatibility Plan (ALUCP), the most recent of which was adopted in 2000. The ALUCP covers four airports in Butte County: Chico Municipal Airport, Oroville Municipal Airport, Paradise Skypark Airport, and Ranchaero Airport. The ALUCP analyzes the noise impacts from these airports, using data from the Butte County Airport Comprehensive Land Use Plan.
All land uses located outside of the 65 dB CNEL contours are considered compatible. However, according to the ALUCP, residential and lodging land uses located between the 55 dB and 60 dB CNEL contours could generate complaints. This is to be expected given that the background noise levels, absent of aircraft overflights, are low. Maximum noise levels due to typical single engine aircraft overflights can range between 65 dB and 80 dB, which may be considered annoying to individuals.

The purpose of the ALUCP is to establish procedures and criteria by which, in accordance with the California State Aeronautics Act, the ALUC shall review proposed land use development in Butte County and affected cities within the county. In addition, the ALUC shall review certain types of airport development proposals. It is important to note that the ALUCP specifically states: “Where development not in conformance with the Airport Land Use Compatibility Plan already exists, additional infill development of similar land uses may be allowed to occur, even if such land uses are to be prohibited elsewhere in the zone. This exception applies only within Compatibility Zones B2 and C.”

**B. Existing Conditions**

This section discusses the existing conditions related to noise in Butte County.

**1. Existing Noise Sensitive Land Uses**

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the primary intended use of the land. Places where people live, sleep, recreate, worship, and study are generally considered to be sensitive to noise because intrusive noise can be disruptive to these activities.
2. Major Mobile Noise Sources

Major mobile noise sources in the county include roadway traffic, railroads, and airports. Roadway traffic is the most substantial source because the noise is constant as opposed to the periodic noise from railroads and airports.

a. Traffic

Noise generated by vehicular traffic in the county was evaluated using the Federal Highway Administration (FHWA) Traffic Noise Model Version 2.5 and traffic volumes developed as part of the General Plan 2030 process. Table 4.10-5 summarizes existing traffic noise levels along roadways in the county expressed at Ldn values at 100 feet from the roadway centerline. The distance to the 70, 65, and 60 Ldn noise contours is also provided. The existing noise contours, which are based on the information described in Table 4.10-5, are illustrated in Appendix D of this EIR.

b. Railroad

Railroad activity in Butte County occurs along two Union Pacific Railroad (UPRR) alignments. The “Valley Line” runs parallel to the west side of Highway 99, while another, unnamed UPRR line runs generally parallel to the Feather River. For the Valley Line, the 70 dB-Ldn contour is located 159 feet from the centerline of the track, the 65 dB-Ldn contour is located about 342 feet from the centerline of the track, and the 60 dB-Ldn contour is located 736 feet from the centerline of the track. For the line running along the Feather River, the 70 dB-Ldn contour is located 184 feet from the centerline of the track, the 65 dB-Ldn contour is located about 398 feet from the centerline of the track, and the 60 dB-Ldn contour is located 858 feet from the centerline of the track. The existing noise contours for the railroad is also shown in Appendix D.

c. Aircraft

As discussed in Section A.3, there are four primary airports in Butte County. The following is a description of each airport and its activity.
### Table 4.10-5  Existing Traffic Noise Levels

<table>
<thead>
<tr>
<th>Segment Location</th>
<th>Receiver Distance* (Feet)</th>
<th>Distance to Ldn Noise Contour (Feet)</th>
<th>70 dB Ldn</th>
<th>65 dB Ldn</th>
<th>60 dB Ldn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muir Ave. to East Ave.</td>
<td>100</td>
<td></td>
<td>45</td>
<td>83</td>
<td>145</td>
</tr>
<tr>
<td>East Ave. to W. Sacramento Ave.</td>
<td>100</td>
<td></td>
<td>60</td>
<td>64</td>
<td>117</td>
</tr>
<tr>
<td>W. Sacramento Ave. to W. 1st St.</td>
<td>100</td>
<td></td>
<td>61</td>
<td>69</td>
<td>125</td>
</tr>
<tr>
<td>W. 1st St. W. 5th St.</td>
<td>100</td>
<td></td>
<td>62</td>
<td>83</td>
<td>150</td>
</tr>
<tr>
<td>W. 5th St. 8th/9th/Walnut St.</td>
<td>100</td>
<td></td>
<td>60</td>
<td>59</td>
<td>107</td>
</tr>
<tr>
<td>8th St. (One way WB), Walnut to Main</td>
<td>100</td>
<td></td>
<td>58</td>
<td>50</td>
<td>92</td>
</tr>
<tr>
<td>9th St. (One way EB), Walnut to Main</td>
<td>100</td>
<td></td>
<td>58</td>
<td>47</td>
<td>88</td>
</tr>
<tr>
<td>8th St. (WB), Main to SR 99</td>
<td>100</td>
<td></td>
<td>59</td>
<td>57</td>
<td>103</td>
</tr>
<tr>
<td>9th St. (EB), Main St. to SR 99</td>
<td>100</td>
<td></td>
<td>60</td>
<td>61</td>
<td>111</td>
</tr>
<tr>
<td>SR 99 to Forest Ave.</td>
<td>100</td>
<td></td>
<td>61</td>
<td>69</td>
<td>123</td>
</tr>
<tr>
<td>Forest Ave. to Humboldt Rd. (Hog Springs)</td>
<td>100</td>
<td></td>
<td>62</td>
<td>41</td>
<td>78</td>
</tr>
<tr>
<td>Humboldt Rd. (H.S.) to Robert E. Lee Dr. (F.R.)</td>
<td>100</td>
<td></td>
<td>58</td>
<td>47</td>
<td>85</td>
</tr>
<tr>
<td>Yuba County Line to Lower Honcut Rd.</td>
<td>100</td>
<td></td>
<td>66</td>
<td>74</td>
<td>127</td>
</tr>
<tr>
<td>Lower Honcut Rd. to East Gridley Rd.</td>
<td>100</td>
<td></td>
<td>67</td>
<td>77</td>
<td>131</td>
</tr>
<tr>
<td>East Gridley Rd. to Palermo Rd.</td>
<td>100</td>
<td></td>
<td>66</td>
<td>76</td>
<td>129</td>
</tr>
<tr>
<td>Palermo Rd. to SR 162</td>
<td>100</td>
<td></td>
<td>67</td>
<td>78</td>
<td>132</td>
</tr>
<tr>
<td>SR 162 to Montgomery St.</td>
<td>100</td>
<td></td>
<td>68</td>
<td>87</td>
<td>149</td>
</tr>
<tr>
<td>Montgomery St. to Grand Ave.</td>
<td>100</td>
<td></td>
<td>70</td>
<td>106</td>
<td>184</td>
</tr>
<tr>
<td>Grand Ave. to SR 149</td>
<td>100</td>
<td></td>
<td>68</td>
<td>88</td>
<td>149</td>
</tr>
<tr>
<td>SR 149 to SR 191</td>
<td>100</td>
<td></td>
<td>62</td>
<td>40</td>
<td>76</td>
</tr>
<tr>
<td>SR 191 to Pentz Rd.</td>
<td>100</td>
<td></td>
<td>57</td>
<td>40</td>
<td>77</td>
</tr>
<tr>
<td>Pentz Rd. to Big Bend Rd. (Concow)</td>
<td>100</td>
<td></td>
<td>55</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Segment Location</td>
<td>Receiver Distance&lt;sup&gt;a&lt;/sup&gt; (Feet)</td>
<td>dB L&lt;sub&gt;dn&lt;/sub&gt;</td>
<td>70 dB L&lt;sub&gt;dn&lt;/sub&gt;</td>
<td>65 dB L&lt;sub&gt;dn&lt;/sub&gt;</td>
<td>60 dB L&lt;sub&gt;dn&lt;/sub&gt;</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td>--------------------------------------</td>
<td>------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Sutter County line to Archer Ave.</td>
<td>100</td>
<td>66</td>
<td>71</td>
<td>124</td>
<td>222</td>
</tr>
<tr>
<td>Archer Ave. to Spruce St. (Gridley)</td>
<td>100</td>
<td>63</td>
<td>45</td>
<td>87</td>
<td>164</td>
</tr>
<tr>
<td>Spruce St. to East Biggs Hwy.</td>
<td>100</td>
<td>66</td>
<td>68</td>
<td>119</td>
<td>213</td>
</tr>
<tr>
<td>East Biggs Hwy. SR 162 (East)</td>
<td>100</td>
<td>64</td>
<td>57</td>
<td>99</td>
<td>180</td>
</tr>
<tr>
<td>SR 162 to (East) to SR 149</td>
<td>100</td>
<td>64</td>
<td>54</td>
<td>95</td>
<td>171</td>
</tr>
<tr>
<td>SR 149 to Durham - Pentz Rd.</td>
<td>100</td>
<td>69</td>
<td>100</td>
<td>174</td>
<td>304</td>
</tr>
<tr>
<td>Durham - Pentz Rd to Skyway</td>
<td>100</td>
<td>69</td>
<td>98</td>
<td>169</td>
<td>292</td>
</tr>
<tr>
<td>Skyway to East 20th St.</td>
<td>100</td>
<td>71</td>
<td>126</td>
<td>215</td>
<td>369</td>
</tr>
<tr>
<td>East 20th to SR 32</td>
<td>100</td>
<td>73</td>
<td>146</td>
<td>249</td>
<td>430</td>
</tr>
<tr>
<td>SR 32 to Cohasset Rd.</td>
<td>100</td>
<td>73</td>
<td>147</td>
<td>250</td>
<td>432</td>
</tr>
<tr>
<td>Cohasset Rd. to East Ave.</td>
<td>100</td>
<td>70</td>
<td>115</td>
<td>194</td>
<td>333</td>
</tr>
<tr>
<td>East Ave. to Eaton Rd.</td>
<td>100</td>
<td>69</td>
<td>97</td>
<td>165</td>
<td>283</td>
</tr>
<tr>
<td>Eaton Rd. to Keefer Rd.</td>
<td>100</td>
<td>66</td>
<td>72</td>
<td>122</td>
<td>209</td>
</tr>
<tr>
<td>SR 149</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 70 to SR 99</td>
<td>100</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 162</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glenn County line to SR 99 (south intersect)</td>
<td>100</td>
<td>51</td>
<td></td>
<td></td>
<td>34</td>
</tr>
<tr>
<td>SR 99 (north intersect) to Larkin Rd.</td>
<td>100</td>
<td>60</td>
<td>60</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>Larkin Rd. to SR 70</td>
<td>100</td>
<td>59</td>
<td>55</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>SR 70 to Feather River Blvd.</td>
<td>100</td>
<td>64</td>
<td>51</td>
<td>95</td>
<td>184</td>
</tr>
<tr>
<td>Feather River Blvd. to Lincoln Blvd.</td>
<td>100</td>
<td>63</td>
<td>44</td>
<td>84</td>
<td>153</td>
</tr>
<tr>
<td>Lincoln Blvd. to Olive Hwy.</td>
<td>100</td>
<td>63</td>
<td>46</td>
<td>86</td>
<td>157</td>
</tr>
<tr>
<td>Olive Hwy. to Lower Wyandotte Rd.</td>
<td>100</td>
<td>62</td>
<td>36</td>
<td>74</td>
<td>137</td>
</tr>
<tr>
<td>Lower Wyandotte Rd. to Foothill Blvd.</td>
<td>100</td>
<td>63</td>
<td>49</td>
<td>89</td>
<td>156</td>
</tr>
<tr>
<td>Foothill Blvd. to Canyon Dr.</td>
<td>100</td>
<td>61</td>
<td>36</td>
<td>72</td>
<td>125</td>
</tr>
</tbody>
</table>
### Table 4.10-5  Existing Traffic Noise Levels (continued)

<table>
<thead>
<tr>
<th>Segment Location</th>
<th>Receiver Distance* (Feet)</th>
<th>dB Ldn</th>
<th>dB Ldn</th>
<th>dB Ldn</th>
<th>dB Ldn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canyon Dr. to Forbestown Rd.</td>
<td>100</td>
<td>39</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SR 70 to Durham-Pentz Rd.</td>
<td>100</td>
<td>57</td>
<td>37</td>
<td>74</td>
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</tr>
<tr>
<td>Durham-Pentz Rd. to Airport Rd.</td>
<td>100</td>
<td>57</td>
<td>37</td>
<td>74</td>
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</tr>
<tr>
<td>Airport Rd. to Bushmann Rd.</td>
<td>100</td>
<td>58</td>
<td>47</td>
<td>88</td>
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<tr>
<td>Buschmann Rd. to Pearson Rd.</td>
<td>100</td>
<td>58</td>
<td>46</td>
<td>86</td>
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</tr>
<tr>
<td>Durham-Dayton Rd. to Grainland Ave.</td>
<td>100</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grainland Ave. to SR 162</td>
<td>100</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biggs to SR 99</td>
<td>100</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 99 to Larkin Rd.</td>
<td>100</td>
<td>51</td>
<td></td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>Wagstaff Rd. to Skyway</td>
<td>100</td>
<td>57</td>
<td>40</td>
<td>78</td>
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<td>SR 99 to East Ave.</td>
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<td>60</td>
<td>63</td>
<td>112</td>
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<tr>
<td>East Ave. to Lupin Rd.</td>
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<td>60</td>
<td>63</td>
<td>110</td>
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<td>Lupin Rd. to E. Lassen Ave.</td>
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<td>59</td>
<td>57</td>
<td>98</td>
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<tr>
<td>Lassen Ave. to Boeing Dr. (Chico M. Airport)</td>
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<td>60</td>
<td>33</td>
<td>68</td>
<td>116</td>
</tr>
<tr>
<td>Boeing Dr. to Keefer Rd.</td>
<td>100</td>
<td>54</td>
<td></td>
<td></td>
<td>60</td>
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<td>Keefer Rd. to Vilas Rd.</td>
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<td>53</td>
<td></td>
<td></td>
<td>48</td>
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<tr>
<td>Colusa County line to Pennington Rd.</td>
<td>100</td>
<td>45</td>
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<tr>
<td>Pennington Rd. to Biggs Gridley Rd.</td>
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<td>47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biggs Gridley Rd. to SR 99</td>
<td>100</td>
<td>56</td>
<td></td>
<td></td>
<td>68</td>
</tr>
<tr>
<td>SR 32 to Hegan Lane</td>
<td>100</td>
<td>55</td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Hegan Lane to Durham-Dayton Hwy.</td>
<td>100</td>
<td>55</td>
<td></td>
<td></td>
<td>66</td>
</tr>
<tr>
<td>Dayton Rd. to Midway</td>
<td>100</td>
<td>53</td>
<td></td>
<td></td>
<td>51</td>
</tr>
<tr>
<td>Midway to Stanford Lane</td>
<td>100</td>
<td>50</td>
<td></td>
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</table>
## Table 4.10-5  **Existing Traffic Noise Levels** (continued)

<table>
<thead>
<tr>
<th>Segment Location</th>
<th>Receiver Distance&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Noise Contour</th>
</tr>
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<tr>
<td></td>
<td>dB L&lt;sub&gt;dn&lt;/sub&gt;</td>
<td>70</td>
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<tr>
<td><strong>Distance to L&lt;sub&gt;dn&lt;/sub&gt; Noise Contour</strong> (Feet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Segment Location</strong></td>
<td><strong>Receiver Distance&lt;sup&gt;a&lt;/sup&gt; (Feet)</strong></td>
<td><strong>dB L&lt;sub&gt;dn&lt;/sub&gt;</strong></td>
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<tr>
<td>Stanford Lane to SR 99</td>
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<td>50</td>
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<tr>
<td>Durham–Pentz Rd.</td>
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<td></td>
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<tr>
<td>SR 99 to SR 191</td>
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<tr>
<td>SR 191 to Pentz Rd.</td>
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<tr>
<td>East Ave. - Manzanita Ave. - Bruce Ave.</td>
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<td></td>
</tr>
<tr>
<td>SR 32 to Cussick Ave.</td>
<td>100</td>
<td>61</td>
</tr>
<tr>
<td>Cussick Ave. to Esplanade</td>
<td>100</td>
<td>63</td>
</tr>
<tr>
<td>Esplanade to SR 99</td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td>SR 99 to Cohasset Rd.</td>
<td>100</td>
<td>58</td>
</tr>
<tr>
<td>Cohasset Rd. to Floral Ave.</td>
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<td>60</td>
</tr>
<tr>
<td>Floral Ave. to Mariposa Ave.</td>
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<td>61</td>
</tr>
<tr>
<td>Mariposa Ave. to Marigold Ave.</td>
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<td>58</td>
</tr>
<tr>
<td>Marigold Ave. to Manzanita Ave.</td>
<td>100</td>
<td>58</td>
</tr>
<tr>
<td>East Ave. to Vallombrosa Ave.</td>
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<td>58</td>
</tr>
<tr>
<td>California Park Dr. to SR 32</td>
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<tr>
<td>East Gridley Rd.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 99 to Larkin Rd.</td>
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<td>54</td>
</tr>
<tr>
<td>Larkin Rd. to SR 70</td>
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<td>54</td>
</tr>
<tr>
<td>Eaton Rd.</td>
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<td></td>
</tr>
<tr>
<td>Esplanade to SR 99</td>
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<td>58</td>
</tr>
<tr>
<td>SR 99 to Hicks Lane</td>
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</tr>
<tr>
<td>Hicks Lane to Cohasset Rd.</td>
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<td>59</td>
</tr>
<tr>
<td>Esplanade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 99 to Garner Lane</td>
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<td>Garner Lane to Eaton Rd.</td>
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</tr>
<tr>
<td>Eaton Rd. to Lassen Ave.</td>
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</tr>
<tr>
<td>Lassen Ave. to East Ave.</td>
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<td>60</td>
</tr>
<tr>
<td>East Ave. to Cohasset Rd.</td>
<td>100</td>
<td>60</td>
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<sup>a</sup> Distance is measured from the center of the road.
<table>
<thead>
<tr>
<th>Segment Location</th>
<th>Receiver Distance (Feet)</th>
<th>$\text{dB}_{\text{Ldn}}$</th>
<th>$\text{dB}_{\text{Ldn}}$</th>
<th>$\text{dB}_{\text{Ldn}}$</th>
<th>$\text{dB}_{\text{Ldn}}$</th>
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<tr>
<td>Cohasset Rd. to E. 9th Ave.</td>
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<td>60</td>
<td>65</td>
<td>115</td>
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<td>E. 9th Ave. to E. 1st Ave.</td>
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<td>59</td>
<td>51</td>
<td>93</td>
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</tr>
<tr>
<td>E. 1st Ave. to Main St./Broadway</td>
<td>100</td>
<td>60</td>
<td>65</td>
<td>115</td>
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<td>Main St. (NB) Esplanade/E. 1st St. to 9th St.</td>
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<td>58</td>
<td>48</td>
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<tr>
<td>Broadway (SB) Esplanade/E. 1st St. to 9th St.</td>
<td>100</td>
<td>57</td>
<td>39</td>
<td>77</td>
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<tr>
<td>Park Ave. E. 9th St. to 16th St.</td>
<td>100</td>
<td>58</td>
<td>46</td>
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<tr>
<td>E. 16th St. to E. 20th St.</td>
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<td>57</td>
<td>43</td>
<td>82</td>
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<tr>
<td>E. 20th St. to East Park Ave.</td>
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<td>59</td>
<td>55</td>
<td>96</td>
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<tr>
<td>E. Park Ave. Park Ave. to SR 99</td>
<td>100</td>
<td>60</td>
<td>65</td>
<td>116</td>
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<tr>
<td>Forbestown Rd. SR 162 to Lumpkin Rd.</td>
<td>100</td>
<td>51</td>
<td>35</td>
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</tr>
<tr>
<td>Hegan Lane Dayton Rd. to S.P. Railroad tracks</td>
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<td>55</td>
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<td></td>
<td></td>
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<tr>
<td>S.P. Railroad tracks to Midway</td>
<td>100</td>
<td>56</td>
<td>34</td>
<td>69</td>
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<tr>
<td>Honey Run Rd. Skyway to Centerville Rd.</td>
<td>100</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centerville Rd. Honey Run Rd. to Nimshew Rd.</td>
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<td>45</td>
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<tr>
<td>Nimshew Rd. Centerville to Skyway</td>
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<td></td>
<td></td>
<td></td>
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<td>Larkin Rd. SR 162 to E. Hamilton Rd.</td>
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<td>40</td>
<td>75</td>
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<td>E. Hamilton Rd. to East Biggs Hwy.</td>
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<td>East Biggs Hwy. to E. Gridley Hwy.</td>
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<td>E. Gridley Hwy. to E. Evans Reimer Rd.</td>
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<td>44</td>
<td>82</td>
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<tr>
<td>Marysville Baggett Rd. to Monte Vista Ave.</td>
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<td>59</td>
<td>56</td>
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<tr>
<td>Monte Vista Ave. to Ophir Rd.</td>
<td>100</td>
<td>58</td>
<td>50</td>
<td>89</td>
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</table>
**Table 4.10-5  Existing Traffic Noise Levels (continued)**

<table>
<thead>
<tr>
<th>Segment Location</th>
<th>Receiver Distance (Feet)</th>
<th>dB Ldn</th>
<th>Distance to Ldn Noise Contour (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophir Rd. to Palermo Rd.</td>
<td>100</td>
<td>57</td>
<td>40 77</td>
</tr>
<tr>
<td>SR 70 to Palermo Honcut Hwy.</td>
<td>100</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Palermo Honcut Hwy. to LaPorte Rd.</td>
<td>100</td>
<td>45</td>
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</tr>
<tr>
<td>Lower Honcut Rd. to Oro-Bangor Hwy.</td>
<td>100</td>
<td>47</td>
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</tr>
<tr>
<td>SR 162 to Oro-Bangor Hwy.</td>
<td>100</td>
<td>55</td>
<td>66 66</td>
</tr>
<tr>
<td>Oro-Bangor Hwy. to Ophir Rd.</td>
<td>100</td>
<td>60</td>
<td>63 106</td>
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<tr>
<td>Ophir Rd. to Foothill Blvd.</td>
<td>100</td>
<td>57</td>
<td>44 82</td>
</tr>
<tr>
<td>Upper Palermo Rd.</td>
<td>100</td>
<td>57</td>
<td>44 80</td>
</tr>
<tr>
<td>Palermo Honcut Hwy.</td>
<td>100</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Ophir Rd. to Lower Honcut Rd.</td>
<td>100</td>
<td>52</td>
<td>45 45</td>
</tr>
<tr>
<td>East Park Ave. to Hegan Lane</td>
<td>100</td>
<td>61</td>
<td>36 72 122</td>
</tr>
<tr>
<td>Hegan Lane to Southgate Extension</td>
<td>100</td>
<td>59</td>
<td>56 96</td>
</tr>
<tr>
<td>SR 70 to Lincoln Blvd.</td>
<td>100</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Lincoln Blvd. to Table Mountain Blvd.</td>
<td>100</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Lincoln Blvd. to Lower Wyandotte Rd.</td>
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</tr>
<tr>
<td>Lower Wyandotte Rd. to Foothill Blvd.</td>
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<td>50</td>
<td></td>
</tr>
<tr>
<td>Foothill Blvd. to Swedes Flat Rd.</td>
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<td>47</td>
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</tr>
<tr>
<td>S/O Swedes Flat Rd.</td>
<td>100</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Upper Palermo Rd. to Lincoln Blvd.</td>
<td>100</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Lincoln Blvd. to Lone Tree Rd.</td>
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<td>49</td>
<td></td>
</tr>
<tr>
<td>Lone Tree Rd. to SR 70</td>
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<td>49</td>
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</tr>
<tr>
<td>SR 70 to Messilla Valley Rd.</td>
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<td>52</td>
<td>43 43</td>
</tr>
<tr>
<td>Messilla Valley Rd. to Malibu Dr.</td>
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<td>54</td>
<td>55 55</td>
</tr>
<tr>
<td>SR 99 to Notre Dame Blvd.</td>
<td>100</td>
<td>63</td>
<td>51 90 157</td>
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</tbody>
</table>

4.10-18
### Table 4.10-5  Existing Traffic Noise Levels (continued)

<table>
<thead>
<tr>
<th>Segment Location</th>
<th>Receiver Distance* (Feet)</th>
<th>dB Ldn</th>
<th>70 dB Ldn</th>
<th>65 dB Ldn</th>
<th>60 dB Ldn</th>
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<tbody>
<tr>
<td>Notre Dame Blvd. to Bruce Rd.</td>
<td>100</td>
<td>62</td>
<td>40</td>
<td>77</td>
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</tr>
<tr>
<td>Bruce Rd. to Honey Run Rd.</td>
<td>100</td>
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<td>83</td>
<td>138</td>
<td>234</td>
</tr>
<tr>
<td>Honey Run Rd. to Neal Rd.</td>
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<td>66</td>
<td>72</td>
<td>120</td>
<td>203</td>
</tr>
<tr>
<td>Neal Rd. to Pearson Rd.</td>
<td>100</td>
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<td>34</td>
<td>69</td>
<td>122</td>
</tr>
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<td>Pearson Rd. to Bille Rd.</td>
<td>100</td>
<td>60</td>
<td>61</td>
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<tr>
<td>Bille Rd. to Wagstaff Rd.</td>
<td>100</td>
<td>59</td>
<td>57</td>
<td>100</td>
<td></td>
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<tr>
<td>Wagstaff Rd. to Clark Rd.</td>
<td>100</td>
<td>57</td>
<td>41</td>
<td>79</td>
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</tr>
<tr>
<td>Clark Rd. to Pentz Rd</td>
<td>100</td>
<td>59</td>
<td>53</td>
<td>94</td>
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</tr>
<tr>
<td>Pentz Rd. to S. Park</td>
<td>100</td>
<td>59</td>
<td>55</td>
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</tr>
<tr>
<td>South Park to Nimshew Rd</td>
<td>100</td>
<td>58</td>
<td>51</td>
<td>91</td>
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</tr>
<tr>
<td>Nimshew Rd. to Lovelock Rd.</td>
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<tr>
<td>Lovelock Rd. to Powellton Rd.</td>
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<td>47</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Table Mountain Blvd.</td>
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<td></td>
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</tr>
<tr>
<td>Mountain Blvd.</td>
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</tr>
<tr>
<td>Montgomery St. to County Center Dr.</td>
<td>100</td>
<td>57</td>
<td>42</td>
<td>80</td>
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</tr>
<tr>
<td>County Center Dr. to SR 70</td>
<td>100</td>
<td>60</td>
<td>61</td>
<td>105</td>
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</tr>
<tr>
<td>Ophir Rd.</td>
<td>East of Feather River Blvd.</td>
<td>100</td>
<td>57</td>
<td>46</td>
<td>84</td>
</tr>
<tr>
<td>Foothill Blvd.</td>
<td>South of SR 162</td>
<td>100</td>
<td>54</td>
<td></td>
<td>58</td>
</tr>
<tr>
<td>Miners Ranch Rd.</td>
<td>South of SR 162</td>
<td>100</td>
<td>53</td>
<td></td>
<td>53</td>
</tr>
</tbody>
</table>

* Distance to roadway centerline.

i.  *Chico Municipal Airport*

The Chico Municipal Airport is the largest airport in Butte County. According to the ALUCP, 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. During a peak fire season day, an additional 200 aircraft operations may occur.

ii.  *Oroville Municipal Airport*

The Oroville Municipal Airport is located within an extension of the Oroville city limits, approximately 2.5 miles west of the remainder of the city. Existing annual average operations are approximately 100 operations per day.

iii.  *Paradise Skypark Airport*

The Paradise Skypark Airport is a privately-owned airport. Existing annual average operations are approximately 41 operations per day. As of 2003, there were 45 aircraft based at the airport.

iv.  *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.

3.  **Major Stationary Noise Sources**

Industrial processes and facilities can be sources of substantial noise. Mechanical equipment, heavy equipment, and trucks operated at these facilities are the primary sources of noise. Major stationary noise sources in unincorporated Butte County are described below.
a. Landfills/Transfer Stations
The Neal Road Recycling and Waste Facility (Neil Road Facility) is located at 1023 Neal Road, south of the City of Chico and east of Highway 99. There are also two solid waste transfer stations in Butte County; one is located south of Chico on Scott Road, and the other is located on Ord Ranch Road near Gridley. A worst-case hourly average noise level at the landfill is 80 dBA $L_{eq}$, at a reference distance of 50 feet, and maximum levels can be as high as 94 dB at a distance of 50 feet. Based on field observations, there are no noise-sensitive land uses affected by the Neil Road Facility. Noise levels associated with transfer stations indicate that typical hourly average noise levels range between 60 dB $L_{eq}$ and 70 dB $L_{eq}$ at a distance of 50 feet from the transfer station building.

b. Mining Operations
Existing and proposed aggregate mining operations within Butte County have been identified as potential stationary noise sources. Aggregate mining and processing noise emissions for small to moderate size facilities are approximately 85 dB $L_{eq}$ and 90 dB $L_{max}$, respectively, at a reference distance of 100 feet. Therefore, unshielded operations would require setbacks of approximately 3,000 feet. Shielding of various on-site noise sources with natural berms or acoustical curtains can reduce overall noise levels between 5 dB and 20 dB.\(^1\)

c. General Service Commercial & Light Industrial Uses
Noise sources associated with service commercial uses, such as automotive repair facilities, wrecking yards, tire installation centers, car washes and loading docks, are found at various locations throughout Butte County. The noise emissions of these types of uses are dependent on many factors and are therefore difficult to quantify precisely. Noise generated by these uses contributes to the ambient noise environment in their immediate vicinity and should be considered where either new noise-sensitive uses are proposed nearby or where similar uses are proposed in existing residential areas.

d. Recreational Sources
The Cycleland Speedway, the Paradise Rod Gun & Shooting Club, and parks and school playing fields are the major sources of stationary noise from recreational uses in the county. The Cycleland Speedway is located in the central portion of Butte County on the southwest corner of Nelson Road and Highway 99. Events at Cycleland Speedway run from mid-February to mid-October. Most events are scheduled on Saturday or Sunday. Based on data collected at similar facilities, the worst-case hourly average noise level is about 80 dBA $L_{eq}$ at a reference distance of 200 feet from the center of the motocross track. Maximum levels could be as high as 88 dB at a distance of 200 feet.

The Paradise Rod & Gun Club Shooting Range is a firing range on a 40-acre parcel on the south side of the Skyway, between Chico and Paradise. The club provides recreational shooting for the general public and club members, local law enforcement for training, and youth firearms safety. Noise conditions associated with this facility were evaluated in an environmental noise analysis prepared by Bollard Acoustical Consulting in 1998. Because there is no County noise ordinance, the report identified appropriate noise level criteria designed specifically for the project. A series of noise mitigation measures were included in the project design to reduce the potential for annoyance at residential uses.

There are numerous park and school uses within the unincorporated areas of Butte County. At a distance of 100 feet from an elementary school playground being used by 100 students, average and maximum noise levels of 60 and 75 dB, respectively, can be expected. At organized events, such as high-school football games with large crowds and public address systems, the noise generation is often significantly higher. As with service commercial uses, the noise generation of parks and school playing fields is variable.

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e. Other Stationary Noise Sources
The Wild Goose Gas Storage facility is located on West Liberty Road, west of Gridley. Bollard & Brennan, Inc. conducted noise level measurements at the nearest residential uses to the east and west of the project site. Noise measurement results indicated that daytime and nighttime noise generated by the facility was not audible, and that overall background noise levels were generally below 50 dB Ldn.

4. Groundborne Vibration Sources
Train passages and construction activity can generate high levels of groundborne vibration. Blasting and high-impact construction equipment such as pile drivers have the potential to result in perceptible vibration at noise sensitive land uses and in extreme cases result in damage to structures. Vibration from train passages can sometimes be perceptible within about 100 feet of a track.

C. Standards of Significance
General Plan 2030 and the ALUCP override would have a significant noise-related impact if they would:

♦ Expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or other applicable standards.

♦ Expose people to or generate excessive groundborne vibration or groundborne noise levels.

♦ Create a substantial temporary, periodic or permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

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4.10-24

♦ Expose people living or working in the project area to excessive noise from a public or private airport.

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative noise impacts that could occur as a result of the projected 2030 buildout of General Plan 2030 and the ALUCP override.

1. Project Impacts
   a. Expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or other applicable standards.

   The assessment of the exposure of people to or generation of noise in this section is based on an analysis of the spatial location of development allowed by General Plan 2030. General Plan 2030 would allow development of residential land uses and other potentially noise sensitive uses, such as schools, parks, and churches, in areas adjacent to noise sources, such as roadways, industrial facilities, airports, or railroad tracks. However, the Health and Safety Element of General Plan 2030 includes new standards for maximum allowable exposure to both transportation and non-transportation noise sources. Table 4.10-6 shows the Health and Safety Element’s performance standards for new projects affected by transportation noise sources. Table 4.10-7 shows the maximum allowable noise exposure to non-transportation noise sources.

   Table 4.10-8 summarizes traffic noise levels predicted in the buildout year of 2030. The noise contours predicted in the buildout year of 2030 are also illustrated in Appendix D. Rail operations are not anticipated to substantially increase in the future. Aircraft operations at the county’s four airports are anticipated to increase in the future. Aircraft noise contours for each airport are presented in Appendix E.
### Table 4.10-6  Maximum Allowable Noise Exposure to Transportation Sources

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Exterior Noise Level Standard for Outdoor Activity Areas</th>
<th>Interior Noise Level Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( L_{dn}/CNEL, ) dB</td>
<td>( L_{eq}, ) dBA(^a)</td>
</tr>
<tr>
<td>Residential</td>
<td>60(^c)</td>
<td>–</td>
</tr>
<tr>
<td>Transient lodging</td>
<td>60(^c)</td>
<td>–</td>
</tr>
<tr>
<td>Hospitals, nursing homes</td>
<td>60(^c)</td>
<td>–</td>
</tr>
<tr>
<td>Theaters, auditoriums, music halls</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Churches, meeting halls</td>
<td>60(^c)</td>
<td>–</td>
</tr>
<tr>
<td>Office buildings</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Schools, libraries, museums</td>
<td>–</td>
<td>70</td>
</tr>
<tr>
<td>Playgrounds, neighborhood parks</td>
<td>–</td>
<td>70</td>
</tr>
</tbody>
</table>

Note: – = Not applicable.

\(^a\) Where the location of outdoor activity areas is unknown, the exterior noise-level standard shall be applied to the property line of the receiving land use.

\(^b\) As determined for a typical worst-case hour during periods of use.

\(^c\) Where it is not possible to reduce noise in outdoor activity areas to 60 dB \( L_{dn}/CNEL \) or less using a practical application of the best-available noise-reduction measures, an exterior noise level of up to 65 dB \( L_{dn}/CNEL \) may be allowed, provided that available exterior noise-level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: Butte County General Plan 2030.

The traffic noise modeling results in Table 4.10-8 indicate that traffic noise levels within several hundred feet of major roadways, including Highways 32, 70, and 99, will exceed 60 \( L_{dn} \) in the future. Train noise levels and aircraft noise levels will also exceed 60 \( L_{dn} \) at many areas throughout the county.
Table 4.10-7  **Maximum Allowable Noise Exposure to Non-Transportation Noise Sources**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Daytime 7 a.m. - 7 p.m.</th>
<th>Evening 7 p.m. - 10 p.m.</th>
<th>Night 10 p.m. - 7 a.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hourly Leq, dB</td>
<td>55</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Maximum Level, dB</td>
<td>70</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

Notes:

1. “Non-Urban designations” are Agriculture, Timber Mountain, Resource Conservation, Foothill Residential, and Rural Residential. All other designations are considered “urban designations” for the purposes of regulating noise exposure.
2. Each of the noise levels specified above shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).
3. The County can impose noise level standards which are up to 5 dB less than those specified above based upon determination of existing low ambient noise levels in the vicinity of the project site.
4. In urban areas, the exterior noise level standard shall be applied to the property line of the receiving property. In rural areas, the exterior noise level standard shall be applied at a point 100 feet away from the residence. The above standards shall be measured only on property containing a noise sensitive land use. This measurement standard may be amended to provide for measurement at the boundary of a recorded noise easement between all affected property owners and approved by the County.

Source: Butte County General Plan 2030.

With implementation of General Plan 2030, there is potential for new noise sensitive uses to be located in areas where noise exceeds County noise compatibility standards.

The following goals, policies and actions in the proposed General Plan 2030 Health and Safety Element directly address the exposure of new noise sensitive land uses to noise exceeding General Plan noise standards. Goal HS-1 is
### Table 4.10-8  **Future (2030) Traffic Noise Levels**

<table>
<thead>
<tr>
<th>Segment Location</th>
<th>Receiver Distance* (Feet)</th>
<th>70 dB Ldn</th>
<th>65 dB Ldn</th>
<th>60 dB Ldn</th>
<th>60 dB Ldn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muir Ave. to East Ave.</td>
<td>100</td>
<td>63</td>
<td>52</td>
<td>93</td>
<td>164</td>
</tr>
<tr>
<td>East Ave. to W. Sacramento Ave.</td>
<td>100</td>
<td>61</td>
<td>35</td>
<td>72</td>
<td>129</td>
</tr>
<tr>
<td>W. Sacramento Ave. to W. 1st St.</td>
<td>100</td>
<td>62</td>
<td>38</td>
<td>75</td>
<td>135</td>
</tr>
<tr>
<td>W. 1st St. W. 5th St.</td>
<td>100</td>
<td>63</td>
<td>47</td>
<td>88</td>
<td>160</td>
</tr>
<tr>
<td>W. 5th St. 8th/9th/Walnut St.</td>
<td>100</td>
<td>61</td>
<td>67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8th St. (One way WB), Walnut to Main</td>
<td>100</td>
<td>60</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9th St. (One way EB), Walnut to Main</td>
<td>100</td>
<td>59</td>
<td>56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8th St. (WB), Main to SR 99</td>
<td>100</td>
<td>61</td>
<td>66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9th St. (EB), Main St. to SR 99</td>
<td>100</td>
<td>61</td>
<td>33</td>
<td>69</td>
<td>125</td>
</tr>
<tr>
<td>SR 99 to Forest Ave.</td>
<td>100</td>
<td>64</td>
<td>54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest Ave. to Humboldt Rd. (Hog Springs)</td>
<td>100</td>
<td>62</td>
<td>44</td>
<td>82</td>
<td>141</td>
</tr>
<tr>
<td>Humboldt Rd. (H.S.) to Robert E. Lee Dr. (F.R.)</td>
<td>100</td>
<td>59</td>
<td>54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yuba County Line to Lower Honcut Rd.</td>
<td>100</td>
<td>68</td>
<td>88</td>
<td>153</td>
<td>270</td>
</tr>
<tr>
<td>Lower Honcut Rd. to East Gridley Rd.</td>
<td>100</td>
<td>68</td>
<td>90</td>
<td>157</td>
<td>278</td>
</tr>
<tr>
<td>East Gridley Rd. to Palermo Rd.</td>
<td>100</td>
<td>69</td>
<td>100</td>
<td>177</td>
<td>313</td>
</tr>
<tr>
<td>Palermo Rd. to SR 162</td>
<td>100</td>
<td>69</td>
<td>98</td>
<td>171</td>
<td>301</td>
</tr>
<tr>
<td>SR 162 to Montgomery St.</td>
<td>100</td>
<td>71</td>
<td>121</td>
<td>211</td>
<td>369</td>
</tr>
<tr>
<td>Montgomery St. to Grand Ave.</td>
<td>100</td>
<td>72</td>
<td>133</td>
<td>233</td>
<td>409</td>
</tr>
<tr>
<td>Grand Ave. to SR 149</td>
<td>100</td>
<td>70</td>
<td>112</td>
<td>191</td>
<td>331</td>
</tr>
<tr>
<td>SR 149 to SR 191</td>
<td>100</td>
<td>62</td>
<td>44</td>
<td>82</td>
<td>143</td>
</tr>
<tr>
<td>SR 191 to Pentz Rd.</td>
<td>100</td>
<td>58</td>
<td>47</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>Pentz Rd. to Big Bend Rd. (Concow)</td>
<td>100</td>
<td>56</td>
<td>38</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 4.10-8  **Future (2030) Traffic Noise Levels** (continued)

<table>
<thead>
<tr>
<th>Segment Location</th>
<th>Receiver Distance&lt;sup&gt;a&lt;/sup&gt; (Feet)</th>
<th>dB L&lt;sub&gt;dn&lt;/sub&gt;</th>
<th>70 dB L&lt;sub&gt;dn&lt;/sub&gt;</th>
<th>65 dB L&lt;sub&gt;dn&lt;/sub&gt;</th>
<th>60 dB L&lt;sub&gt;dn&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sutter County line to Archer Ave.</td>
<td>100</td>
<td>68</td>
<td>85</td>
<td>148</td>
<td>267</td>
</tr>
<tr>
<td>Archer Ave. to Spruce St. (Gridley)</td>
<td>100</td>
<td>64</td>
<td>52</td>
<td>96</td>
<td>186</td>
</tr>
<tr>
<td>Spruce St. to East Biggs Hwy.</td>
<td>100</td>
<td>67</td>
<td>79</td>
<td>137</td>
<td>247</td>
</tr>
<tr>
<td>East Biggs Hwy. SR 162 (East)</td>
<td>100</td>
<td>66</td>
<td>72</td>
<td>126</td>
<td>229</td>
</tr>
<tr>
<td>SR 162 to (East) to SR 149</td>
<td>100</td>
<td>66</td>
<td>70</td>
<td>123</td>
<td>223</td>
</tr>
<tr>
<td>SR 149 to Durham - Pentz Rd.</td>
<td>100</td>
<td>72</td>
<td>131</td>
<td>230</td>
<td>404</td>
</tr>
<tr>
<td>Durham - Pentz Rd to Skyway</td>
<td>100</td>
<td>72</td>
<td>135</td>
<td>234</td>
<td>406</td>
</tr>
<tr>
<td>Skyway to East 20th St.</td>
<td>100</td>
<td>73</td>
<td>148</td>
<td>253</td>
<td>437</td>
</tr>
<tr>
<td>East 20th to SR 32</td>
<td>100</td>
<td>74</td>
<td>168</td>
<td>288</td>
<td>498</td>
</tr>
<tr>
<td>SR 32 to Cohasset Rd.</td>
<td>100</td>
<td>74</td>
<td>168</td>
<td>288</td>
<td>498</td>
</tr>
<tr>
<td>Cohasset Rd. to East Ave.</td>
<td>100</td>
<td>72</td>
<td>137</td>
<td>234</td>
<td>403</td>
</tr>
<tr>
<td>East Ave. to Eaton Rd.</td>
<td>100</td>
<td>71</td>
<td>121</td>
<td>206</td>
<td>354</td>
</tr>
<tr>
<td>Eaton Rd. to Keefer Rd.</td>
<td>100</td>
<td>68</td>
<td>88</td>
<td>149</td>
<td>256</td>
</tr>
<tr>
<td>SR 70 to SR 99</td>
<td>100</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 162</td>
<td>100</td>
<td>53</td>
<td></td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>Glenn County line to SR 99 (south intersect)</td>
<td>100</td>
<td>60</td>
<td>61</td>
<td>107</td>
<td></td>
</tr>
<tr>
<td>SR 99 (north intersect) to Larkin Rd.</td>
<td>100</td>
<td>60</td>
<td>65</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>Larkin Rd. to SR 70</td>
<td>100</td>
<td>60</td>
<td>65</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>SR 70 to Feather River Blvd.</td>
<td>100</td>
<td>66</td>
<td>65</td>
<td>122</td>
<td>240</td>
</tr>
<tr>
<td>Feather River Blvd. to Lincoln Blvd.</td>
<td>100</td>
<td>64</td>
<td>58</td>
<td>104</td>
<td>195</td>
</tr>
<tr>
<td>Lincoln Blvd. to Olive Hwy.</td>
<td>100</td>
<td>64</td>
<td>57</td>
<td>103</td>
<td>193</td>
</tr>
<tr>
<td>Olive Hwy. to Lower Wyandotte Rd.</td>
<td>100</td>
<td>63</td>
<td>46</td>
<td>88</td>
<td>167</td>
</tr>
<tr>
<td>Lower Wyandotte Rd. to Foothill Blvd.</td>
<td>100</td>
<td>65</td>
<td>61</td>
<td>106</td>
<td>190</td>
</tr>
<tr>
<td>Foothill Blvd. to Canyon Dr.</td>
<td>100</td>
<td>63</td>
<td>51</td>
<td>90</td>
<td>159</td>
</tr>
<tr>
<td>Segment Location</td>
<td>Receiver Distance(^a) (Feet)</td>
<td>dB (L_{dn})</td>
<td>70 dB (L_{dn})</td>
<td>65 dB (L_{dn})</td>
<td>60 dB (L_{dn})</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------------------------</td>
<td>--------------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Canyon Dr. to Forbestown Rd.</td>
<td>100</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 70 to Durham-Pentz Rd.</td>
<td>100</td>
<td>57</td>
<td>40</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Durham-Pentz Rd. to Airport Rd.</td>
<td>100</td>
<td>57</td>
<td>37</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Airport Rd. to Bushmann Rd.</td>
<td>100</td>
<td>59</td>
<td>54</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>Buschmann Rd. to Pearson Rd.</td>
<td>100</td>
<td>59</td>
<td>54</td>
<td>97</td>
<td></td>
</tr>
<tr>
<td>Durham-Dayton Rd. to Grainland Ave.</td>
<td>100</td>
<td>52</td>
<td></td>
<td></td>
<td>43</td>
</tr>
<tr>
<td>Grainland Ave. to SR 162</td>
<td>100</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biggs to SR 99</td>
<td>100</td>
<td>51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 99 to Larkin Rd.</td>
<td>100</td>
<td>51</td>
<td></td>
<td></td>
<td>37</td>
</tr>
<tr>
<td>Wagstaff Rd. to Skyway</td>
<td>100</td>
<td>57</td>
<td>44</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>SR 99 to East Ave.</td>
<td>100</td>
<td>62</td>
<td>38</td>
<td>75</td>
<td>131</td>
</tr>
<tr>
<td>East Ave. to Lupin Rd.</td>
<td>100</td>
<td>61</td>
<td>37</td>
<td>73</td>
<td>126</td>
</tr>
<tr>
<td>Lupin Rd. to E. Lassen Ave.</td>
<td>100</td>
<td>60</td>
<td>63</td>
<td></td>
<td>109</td>
</tr>
<tr>
<td>Lassen Ave. to Boeing Dr. (Chico M. Airport)</td>
<td>100</td>
<td>62</td>
<td>44</td>
<td>81</td>
<td>138</td>
</tr>
<tr>
<td>Boeing Dr. to Keefer Rd.</td>
<td>100</td>
<td>56</td>
<td>35</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>Keefer Rd. to Vilas Rd.</td>
<td>100</td>
<td>53</td>
<td></td>
<td></td>
<td>53</td>
</tr>
<tr>
<td>Colusa County line to Pennington Rd.</td>
<td>100</td>
<td>46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pennington Rd. to Biggs Gridley Rd.</td>
<td>100</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biggs Gridley Rd. to SR 99</td>
<td>100</td>
<td>57</td>
<td>38</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>SR 32 to Hegan Lane</td>
<td>100</td>
<td>55</td>
<td></td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Hegan Lane to Durham-Dayton Hwy.</td>
<td>100</td>
<td>57</td>
<td>42</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Dayton Rd. to Midway</td>
<td>100</td>
<td>54</td>
<td></td>
<td></td>
<td>52</td>
</tr>
<tr>
<td>Midway to Stanford Lane</td>
<td>100</td>
<td>51</td>
<td></td>
<td></td>
<td>37</td>
</tr>
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</table>
## Table 4.10-8  **Future (2030) Traffic Noise Levels** (continued)

<table>
<thead>
<tr>
<th>Segment Location</th>
<th>Receiver Distance&lt;sup&gt;a&lt;/sup&gt; (Feet)</th>
<th>dB L&lt;sub&gt;dn&lt;/sub&gt;</th>
<th>70 dB L&lt;sub&gt;dn&lt;/sub&gt;</th>
<th>65 dB L&lt;sub&gt;dn&lt;/sub&gt;</th>
<th>60 dB L&lt;sub&gt;dn&lt;/sub&gt;</th>
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<td>East Ave., - Manzanita Ave. - Bruce Ave.</td>
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<td>55</td>
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</tr>
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<td>Esplanade to SR 99</td>
<td>100</td>
<td>62</td>
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<td>77</td>
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</tr>
<tr>
<td>SR 99 to Cohasset Rd.</td>
<td>100</td>
<td>60</td>
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<td>Cohasset Rd. to Floral Ave.</td>
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<td>California Park Dr. to SR 32</td>
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<td>East Gridley Rd.</td>
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<tr>
<td>SR 99 to Larkin Rd.</td>
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<tr>
<td>Larkin Rd. to SR 70</td>
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<td>Eaton Rd.</td>
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<td>Esplanade to SR 99</td>
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<td>60</td>
<td>105</td>
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<td>SR 99 to Hicks Lane</td>
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<td>Esplanade</td>
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<td></td>
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<td></td>
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<td>Garner Lane to Eaton Rd.</td>
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<td>East Ave. to Cohasset Rd.</td>
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<td>66</td>
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<tr>
<td>Segment Location</td>
<td>Receiver Distance* (Feet)</td>
<td>dB Ldn</td>
<td>70 dB Ldn</td>
<td>65 dB Ldn</td>
<td>60 dB Ldn</td>
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<td>---------------------------</td>
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<tr>
<td>E. 1st Ave. to Main St./Broadway</td>
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<td>61</td>
<td>36</td>
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<td>56</td>
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<tr>
<td>Park Ave.</td>
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<tr>
<td>E. 9th St. to 16th St.</td>
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<tr>
<td>E. 16th St. to E. 20th St.</td>
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<td>E. 20th St. to East Park Ave.</td>
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<td>E. Park Ave.</td>
<td>Park Ave. to SR 99</td>
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<td>SR 162 to Lumpkin Rd.</td>
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<td>Hegan Lane</td>
<td>Dayton Rd. to S.P. Railroad tracks</td>
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<td>56</td>
<td>37</td>
<td>72</td>
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<tr>
<td></td>
<td>S.P. Railroad tracks to Midway</td>
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<td>57</td>
<td>42</td>
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<tr>
<td>Honey Run Rd.</td>
<td>Skyway to Centerville Rd.</td>
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<td>Honey Run Rd. to Nimshaw Rd.</td>
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<td>Centerville to Skyway</td>
<td>100</td>
<td>44</td>
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<tr>
<td>Larkin Rd.</td>
<td>SR 162 to E. Hamilton Rd.</td>
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<td>58</td>
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<td>E. Gridley Hwy. to E. Evans Reimer Rd.</td>
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<td>55</td>
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<td>SR 162 to Marysville Baggett Rd.</td>
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<td></td>
<td>Marysville Baggett Rd. to Monte Vista Ave.</td>
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<td></td>
<td>Monte Vista Ave. to Ophir Rd.</td>
<td>100</td>
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<td>33</td>
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</table>
### Table 4.10-8  **Future (2030) Traffic Noise Levels** (continued)

<table>
<thead>
<tr>
<th>Segment Location</th>
<th>Receiver Distance (^a) (Feet)</th>
<th>dB L(_{dn})</th>
<th>70 dB L(_{dn})</th>
<th>65 dB L(_{dn})</th>
<th>60 dB L(_{dn})</th>
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<td>LaPorte Rd.</td>
<td>Lower Honcut Rd. to Oro-Bangor Hwy.</td>
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<td>Lower Wyandotte Rd.</td>
<td>SR 162 to Oro-Bangor Hwy.</td>
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<td>Ora-Bangor Hwy. to Ophir Rd.</td>
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<td>58</td>
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<td>Ophir Rd. to Palermo Rd.</td>
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<tr>
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<td>Lincoln Blvd. to Table Mountain Blvd.</td>
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<td>Lower Wyandotte Rd. to Foothill Blvd.</td>
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<td>Lone Tree Rd. to SR 70</td>
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<td>Segment Location</td>
<td>Distance to Ldn Noise Contour (Feet)</td>
<td>Receiver Distance* (Feet)</td>
<td>dB Ldn</td>
<td>dB Ldn</td>
<td>dB Ldn</td>
</tr>
<tr>
<td>----------------------------------------</td>
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<td>Notre Dame Blvd. to Bruce Rd.</td>
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<tr>
<td>Bruce Rd. to Honey Run Rd.</td>
<td>100</td>
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<td>83</td>
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<tr>
<td>Honey Run Rd. to Neal Rd.</td>
<td>100</td>
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<td>136</td>
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<tr>
<td>Neal Rd. to Pearson Rd.</td>
<td>100</td>
<td>62</td>
<td>43</td>
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<tr>
<td>Pearson Rd. to Bille Rd.</td>
<td>100</td>
<td>60</td>
<td>66</td>
<td>117</td>
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<tr>
<td>Bille Rd. to Wagstaff Rd.</td>
<td>100</td>
<td>60</td>
<td>59</td>
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<tr>
<td>Wagstaff Rd. to Clark Rd.</td>
<td>100</td>
<td>57</td>
<td>41</td>
<td>79</td>
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<td>59</td>
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<tr>
<td>South Park to Nimshew Rd</td>
<td>100</td>
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<td>53</td>
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<td>48</td>
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<tr>
<td>Table Mountain Blvd.</td>
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<td>100</td>
<td>59</td>
<td>56</td>
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<td>County Center Dr. to SR 70</td>
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<td>Ophir Rd.</td>
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<td>Foothill Blvd.</td>
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<td></td>
<td>Miners Ranch Rd.</td>
<td>South of SR 162</td>
<td>100</td>
<td>55</td>
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</tr>
</tbody>
</table>

* Distance to roadway centerline.
to maintain an acceptable noise environment in all areas of the county. In support of this goal, Policy HS-P1.1 states that new development projects proposed in areas that exceed the land use compatibility standards in Tables HS-2 and HS-3 of the General Plan (Tables 4.10-6 and 4.10-7 in this EIR, respectively) shall require mitigation of noise impacts. Policy HS-P1.2 limits noise from transportation sources to levels below land use compatibility standards in Table HS-2 of the General Plan. Policy HS-P1.3 restricts new noise-sensitive land uses within the 55 Ldn contour of airports, roadways, and other noise generating uses, with the exception of the Chico Municipal Airport. Policy HS-P1.4 states that new noise-sensitive land uses shall not be located within the 60 Ldn contour of the Chico Municipal Airport. Policy HS-P1.5 restricts noise from new recreational activities from exceeding 60 dB at the nearest noise sensitive land use. Policy HS-P1.6 requires that applicants proposing a new noise-producing project near existing or planned noise-sensitive uses shall provide a noise analysis prepared by an acoustical specialist with recommendations for design mitigation. Policy HS-P1.7 states that applicants for discretionary permits shall be required to limit noise-generating construction activities located within 1,000 feet of residential uses to daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays and non-holidays. In addition, Policy HS-P1.8 states that construction noise control measures be implemented at construction sites.

In addition, under Action HS-A1.1 the County will develop and adopt an appropriate and consistent County Noise Ordinance to control noise impacts and to ensure that residents are not exposed to excessive noise levels from stationary and mobile sources.

Implementation of these goals, policies and actions will reduce potential noise exposure impacts to a less-than-significant level.

Noise impacts from the ALUCP override are discussed in Section D.1.d.
b. Expose people to or generate excessive groundborne vibration or groundborne noise levels.

The assessment of the exposure of people to groundborne vibration or noise in this section is based on an analysis of the spatial location of development allowed by General Plan 2030. General Plan 2030 would allow development of sensitive receptors, such as schools, parks, residences, and churches, at locations adjacent to the UPRR tracks. High-impact construction activity could also occur near existing residences.

The followings policies in the Health and Safety Element directly address the exposure of noise sensitive land uses to vibration. Policy HS-P1.10 reduces impacts from groundborne vibration associated with rail operations by requiring residences or other vibration-sensitive buildings to be sited at least 100 feet from the centerline of the nearest railroad track whenever feasible. Development of vibration-sensitive buildings, such as those containing precision medical and industrial equipment or television, radio, and recording studios, within 100 feet from the centerline of the nearest railroad track, shall require a study demonstrating that groundborne vibration issues associated with rail operations have been adequately addressed through building siting or construction techniques.

Implementation of these policies will reduce impacts from groundborne vibration to a less-than-significant level.

Noise impacts from the ALUCP override are discussed in Section D.1.d.

c. Create a substantial temporary, periodic or permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

This section separates the impact discussions for temporary and permanent increases in ambient noise.
i. Temporary Increase in Ambient Noise

The assessment of a temporary increase in ambient noise in this section is based on an analysis of the spatial location of development allowed by General Plan 2030. With implementation of General Plan 2030, construction and demolition activities would occur. Table 4.10-9 summarizes noise levels produced by heavy equipment commonly used for construction and demolition activities.

Assuming that the three noisiest pieces of equipment (scraper, paver, and concrete truck) could operate in the same location at the same time, the combined noise level would be 93 dBA at a distance of 50 feet from the noise source(s). Construction noise typically attenuates at a rate of 6 dB per doubling of distance. This corresponds to the following construction noise levels at various distances:

- 93 dBA at 50 feet
- 87 dBA at 100 feet
- 81 dBA at 200 feet
- 75 dBA at 400 feet
- 69 dBA at 800 feet
- 63 dBA at 1,600 feet

As discussed in Sections D.1.a and D.1.b, implementation of General Plan 2030 includes Policy HS-P1.9 to limit construction hours and noise-generating activity. As a result, implementation of General Plan 2030 will reduce this impact to a less-than-significant level.

Noise impacts from the ALUCP override are discussed in Section D.1.d.

ii. Permanent Increase in Ambient Noise

The assessment of a permanent increase in ambient noise in this section is based on a quantitative analysis of impacts resulting from the projected 2030 buildout of General Plan 2030. General Plan 2030 would allow increased development that will result in more traffic on roadways in the county. Table 4.10-10 summarizes predicted traffic noise levels for the General Plan.
### Table 4.10-9  Construction Equipment Noise Emission Levels

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Typical Noise Level (dBA) 50 Feet from Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scraper</td>
<td>89</td>
</tr>
<tr>
<td>Paver</td>
<td>89</td>
</tr>
<tr>
<td>Concrete Truck</td>
<td>85</td>
</tr>
<tr>
<td>Rough Terrain Forklift</td>
<td>85</td>
</tr>
<tr>
<td>Backhoe</td>
<td>80</td>
</tr>
<tr>
<td>Roller</td>
<td>74</td>
</tr>
</tbody>
</table>


Projected 2030 buildout and compares projected 2030 buildout levels to existing noise levels. Significant noise impacts are considered to occur along roadway segments where the following conditions occur:

- 5 dB increase where existing noise is less than 60 L_{dn}.
- 3 dB increase where existing noise is between 60 and 65 L_{dn}.
- 1.5 dB increase where existing noise is greater than 65 L_{dn}.

As indicated in Table 4.10-10, there are several roadway segments where implementation of General Plan 2030 would cause increases in noise that would result in significant impacts.

It is not anticipated that adoption of General Plan 2030 will result in increased train operations on the UPRR track. However, aircraft operations at the county’s four airports are anticipated to increase as follows:

- **Chico Municipal Airport.** Future aircraft operations are estimated to increase from 182 to 257 daily operations, excluding fire attack aircraft. Existing and future operations may also include an additional 200 daily

---

4 Information for each airport is from Butte County, August 8, 2005, General Plan Technical Update Background Report, Final Draft, pages 17-16 through 17-18.
## Table 4.10-10  **Existing and 2030 Traffic Noise Levels**

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Existing $L_{dn}$ at 100 Feet from Roadway Centerline</th>
<th>2030 $L_{dn}$ at 100 Feet from Roadway Centerline</th>
<th>Change in Noise</th>
<th>Significant Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muir Ave. to East Ave.</td>
<td>62</td>
<td>63</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>East Ave. to W. Sacramento Ave.</td>
<td>60</td>
<td>61</td>
<td>1</td>
<td>No</td>
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<tr>
<td>W. Sacramento Ave. to W. 1st St.</td>
<td>61</td>
<td>62</td>
<td>1</td>
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<tr>
<td>W. 1st St. W. 5th St.</td>
<td>62</td>
<td>63</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>W. 5th St. 8th/9th/Walnut St.</td>
<td>60</td>
<td>61</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>8th St. (One way WB), Walnut to Main</td>
<td>58</td>
<td>60</td>
<td>2</td>
<td>No</td>
</tr>
<tr>
<td>9th St. (One way EB), Walnut to Main</td>
<td>58</td>
<td>59</td>
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<td>No</td>
</tr>
<tr>
<td>8th St. (WB), Main to SR 99</td>
<td>59</td>
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<td>2</td>
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</tr>
<tr>
<td>9th St. (EB), Main St. to SR 99</td>
<td>60</td>
<td>61</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>SR 99 to Forest Ave.</td>
<td>61</td>
<td>64</td>
<td>3</td>
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<tr>
<td>Forest Ave. to Humboldt Rd. (Hog Springs)</td>
<td>62</td>
<td>62</td>
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<td>No</td>
</tr>
<tr>
<td>Humboldt Rd. (H.S.) to Robert E. Lee Dr. (F.R.)</td>
<td>58</td>
<td>59</td>
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<tr>
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<td>68</td>
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<tr>
<td>Lower Honcut Rd. to East Gridley Rd.</td>
<td>67</td>
<td>68</td>
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<tr>
<td>East Gridley Rd. to Palermo Rd.</td>
<td>66</td>
<td>69</td>
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<tr>
<td>Palermo Rd. to SR 162</td>
<td>67</td>
<td>69</td>
<td>2</td>
<td>Yes</td>
</tr>
<tr>
<td>SR 162 to Montgomery St.</td>
<td>68</td>
<td>71</td>
<td>3</td>
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</tr>
<tr>
<td>Montgomery St. to Grand Ave.</td>
<td>70</td>
<td>72</td>
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<td>Yes</td>
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<tr>
<td>Grand Ave. to SR 149</td>
<td>68</td>
<td>70</td>
<td>2</td>
<td>Yes</td>
</tr>
<tr>
<td>SR 149 to SR 191</td>
<td>62</td>
<td>62</td>
<td>0</td>
<td>No</td>
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<tr>
<td>SR 191 to Pentz Rd.</td>
<td>57</td>
<td>58</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Pentz Rd. to Big Bend Rd. (Concow)</td>
<td>55</td>
<td>56</td>
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</table>
### Table 4.10-10  **Existing and 2030 Traffic Noise Levels (continued)**

<table>
<thead>
<tr>
<th>SR 99</th>
<th>Existing L&lt;sub&gt;dn&lt;/sub&gt; at 100 Feet from Roadway Centerline</th>
<th>2030 L&lt;sub&gt;dn&lt;/sub&gt; at 100 Feet from Roadway Centerline</th>
<th>Change in Noise</th>
<th>Significant Impact</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Sutter County line to Archer Ave.</td>
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<td>Archer Ave. to Spruce St. (Gridley)</td>
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<td>Spruce St. to East Biggs Hwy.</td>
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<td>67</td>
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<td>East Biggs Hwy. SR 162 (East)</td>
<td>64</td>
<td>66</td>
<td>2</td>
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<tr>
<td></td>
<td>SR 162 to (East) to SR 149</td>
<td>64</td>
<td>66</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>SR 149 to Durham - Pentz Rd.</td>
<td>69</td>
<td>72</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Durham - Pentz Rd to Skyway</td>
<td>69</td>
<td>72</td>
<td>3</td>
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<td></td>
<td>Skyway to East 20th St.</td>
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<td>73</td>
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<tr>
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<td>East 20th to SR 32</td>
<td>73</td>
<td>74</td>
<td>1</td>
</tr>
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<td>SR 32 to Cohasset Rd.</td>
<td>73</td>
<td>74</td>
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<td>Cohasset Rd. to East Ave.</td>
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<td>72</td>
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<td>East Ave. to Eaton Rd.</td>
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<td>71</td>
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<td>Eaton Rd. to Keefer Rd.</td>
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<td>68</td>
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<table>
<thead>
<tr>
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<th></th>
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<tr>
<td></td>
<td>SR 70 to SR 99</td>
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<table>
<thead>
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<tbody>
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<td>53</td>
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<td>SR 99 (north intersect) to Larkin Rd.</td>
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<td>SR 70 to Feather River Blvd.</td>
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<td>Feather River Blvd. to Lincoln Blvd.</td>
<td>63</td>
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<td>Lincoln Blvd. to Olive Hwy.</td>
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<td>63</td>
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<td>Lower Wyandotte Rd. to Foothill Blvd.</td>
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<td>Foothill Blvd. to Canyon Dr.</td>
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<td>63</td>
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<tr>
<td>Table 4.10-10</td>
<td><strong>Existing and 2030 Traffic Noise Levels</strong> (continued)</td>
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<td></td>
<td><strong>Existing L_{dn} at 100 Feet from Roadway Centerline</strong></td>
<td><strong>2030 L_{dn} at 100 Feet from Roadway Centerline</strong></td>
<td><strong>Change in Noise</strong></td>
<td><strong>Significant Impact</strong></td>
</tr>
<tr>
<td><strong>SR 191</strong></td>
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<td>Canyon Dr. to Forbestown Rd.</td>
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<tr>
<td>SR 70 to Durham-Pentz Rd.</td>
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<td>Airport Rd. to Bushmann Rd.</td>
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<td>Buschmann Rd. to Pearson Rd.</td>
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<td>59</td>
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<td>No</td>
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<tr>
<td><strong>Aguas Frias Rd.</strong></td>
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<tr>
<td>Durham-Dayton Rd. to Grainland Ave.</td>
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<td>52</td>
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<td>Grainland Ave. to SR 162</td>
<td>47</td>
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<td><strong>Biggs East Hwy.</strong></td>
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<td>Biggs to SR 99</td>
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<td>SR 99 to Larkin Rd.</td>
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<tr>
<td><strong>Clark Rd.</strong></td>
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<tr>
<td>Wagstaff Rd. to Skyway</td>
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<td>SR 99 to East Ave.</td>
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<td>East Ave. to Lupin Rd.</td>
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<td>Lupin Rd. to E. Lassen Ave.</td>
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<td>Lassen Ave. to Boeing Dr. (Chico M. Airport)</td>
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<td>Boeing Dr. to Keefer Rd.</td>
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<td>Keefer Rd. to Vilas Rd.</td>
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<td>Pennington Rd. to Biggs Gridley Rd.</td>
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<td><strong>Colusa Hwy.</strong></td>
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<tr>
<td><strong>Dayton Rd.</strong></td>
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<tr>
<td>SR 32 to Hegan Lane</td>
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<tr>
<td>Hegan Lane to Durham-Dayton Hwy.</td>
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<td><strong>Durham-Dayton Hwy.</strong></td>
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<td>Dayton Rd. to Midway</td>
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<tr>
<td>Midway to Stanford Lane</td>
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### Table 4.10-10: Existing and 2030 Traffic Noise Levels (continued)

<table>
<thead>
<tr>
<th>Existing L_{dn} at 100 Feet from Roadway Centerline</th>
<th>2030 L_{dn} at 100 Feet from Roadway Centerline</th>
<th>Change in Noise</th>
<th>Significant Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stanford Lane to SR 99</td>
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<td>Durham-Pentz Rd.</td>
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<tr>
<td>SR 99 to SR 191</td>
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<tr>
<td>SR 191 to Pentz Rd.</td>
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<td>51</td>
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</tr>
<tr>
<td>East Ave. - Manzanita Ave. - Bruce Ave.</td>
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</tr>
<tr>
<td>SR 32 to Cussick Ave.</td>
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<td>62</td>
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<tr>
<td>Cussick Ave. to Esplanade</td>
<td>63</td>
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</tr>
<tr>
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</tr>
<tr>
<td>SR 99 to Cohasset Rd.</td>
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<td>Cohasset Rd. to Floral Ave.</td>
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<td>Floral Ave. to Mariposa Ave.</td>
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<td>East Ave. to Vallombrosa Ave.</td>
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<td>61</td>
<td>3</td>
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<tr>
<td>California Park Dr. to SR 32</td>
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<td>SR 99 to Larkin Rd.</td>
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<td>57</td>
<td>3</td>
</tr>
<tr>
<td>Larkin Rd. to SR 70</td>
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<td>57</td>
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<td>Eaton Rd.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Esplanade to SR 99</td>
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<td>60</td>
<td>2</td>
</tr>
<tr>
<td>SR 99 to Hicks Lane</td>
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<td>61</td>
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<td>Esplanade</td>
<td></td>
<td></td>
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<td>SR 99 to Garner Lane</td>
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### Table 4.10-10  **Existing and 2030 Traffic Noise Levels** (continued)

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<tr>
<th>Location</th>
<th>Existing L_{dn} at 100 Feet from Roadway Centerline</th>
<th>2030 L_{dn} at 100 Feet from Roadway Centerline</th>
<th>Change in Noise</th>
<th>Significant Impact</th>
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<tbody>
<tr>
<td>E. 9th Ave. to E. 1st Ave.</td>
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<td>E. 1st Ave. to Main St./Broadway</td>
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<tr>
<td>E. 16th St. to E. 20th St.</td>
<td>57</td>
<td>59</td>
<td>2</td>
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</tr>
<tr>
<td>E. 20th St. to East Park Ave.</td>
<td>59</td>
<td>61</td>
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</tr>
<tr>
<td>E. Park Ave. Park Ave. to SR 99</td>
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<td>61</td>
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</tr>
<tr>
<td>Forbestown Rd. SR 162 to Lumpkin Rd.</td>
<td>51</td>
<td>55</td>
<td>4</td>
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</tr>
<tr>
<td>Hegan Lane Dayton Rd. to S.P. Railroad tracks</td>
<td>55</td>
<td>56</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>S.P. Railroad tracks to Midway</td>
<td>56</td>
<td>57</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Honey Run Rd. Skyway to Centerville Rd.</td>
<td>49</td>
<td>54</td>
<td>5</td>
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</tr>
<tr>
<td>Centerville Rd. Honey Run Rd. to Nimshew Rd.</td>
<td>45</td>
<td>46</td>
<td>1</td>
<td>No</td>
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<tr>
<td>Nimshew Rd. Centerville to Skyway</td>
<td>43</td>
<td>44</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Larkin Rd. SR 162 to E. Hamilton Rd.</td>
<td>56</td>
<td>58</td>
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<tr>
<td>E. Hamilton Rd. to East Biggs Hwy.</td>
<td>51</td>
<td>53</td>
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<td>48</td>
<td>50</td>
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<tr>
<td>E. Gridley Hwy. to E. Evans Reimer Rd.</td>
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<td>Lincoln Blvd. SR 162 to Marysville Baggett Rd.</td>
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<td>Marysville Baggett Rd. to Monte Vista Ave.</td>
<td>59</td>
<td>62</td>
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<tr>
<td>Monte Vista Ave. to Ophir Rd.</td>
<td>58</td>
<td>60</td>
<td>2</td>
<td>No</td>
</tr>
<tr>
<td>Ophir Rd. to Palermo Rd.</td>
<td>57</td>
<td>60</td>
<td>3</td>
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4.10-42
### Existing and 2030 Traffic Noise Levels (continued)

<table>
<thead>
<tr>
<th>Segment</th>
<th>Existing L&lt;sub&gt;dn&lt;/sub&gt; at 100 Feet from Roadway Centerline</th>
<th>2030 L&lt;sub&gt;dn&lt;/sub&gt; at 100 Feet from Roadway Centerline</th>
<th>Change in Noise</th>
<th>Significant Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Honcut Rd.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SR 70 to Palermo Honcut Hwy.</td>
<td>45</td>
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<td>0</td>
<td>No</td>
</tr>
<tr>
<td>Palermo Honcut Hwy. to LaPorte Rd.</td>
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<td>45</td>
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</tr>
<tr>
<td>LaPorte Rd.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Honcut Rd. to Oro-Bangor Hwy.</td>
<td>47</td>
<td>48</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Lower Wyandotte Rd.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 162 to Oro-Bangor Hwy.</td>
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</tr>
<tr>
<td>Oro-Bangor Hwy. to Ophir Rd.</td>
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<td>61</td>
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<td>Ophir Rd. to Foothill Blvd.</td>
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<td>59</td>
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<td>No</td>
</tr>
<tr>
<td>Upper Palermo Rd.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ophir Rd. to Palermo Rd.</td>
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<td>Palermo Honcut Hwy.</td>
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<td></td>
</tr>
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<td>Palermo Rd. to Lower Honcut Rd.</td>
<td>52</td>
<td>53</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Midway</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Park Ave. to Hegan Lane</td>
<td>61</td>
<td>62</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Hegan Lane to Southgate Extension</td>
<td>59</td>
<td>60</td>
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</tr>
<tr>
<td>Montgomery St.</td>
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<tr>
<td>SR 70 to Lincoln Blvd.</td>
<td>55</td>
<td>57</td>
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<td>No</td>
</tr>
<tr>
<td>Lincoln Blvd. to Table Mountain Blvd.</td>
<td>55</td>
<td>58</td>
<td>3</td>
<td>No</td>
</tr>
<tr>
<td>Oroville - Bangor Hwy.</td>
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<td></td>
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<td></td>
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<tr>
<td>Lincoln Blvd. to Lower Wyandotte Rd.</td>
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<tr>
<td>Lower Wyandotte Rd. to Foothill Blvd.</td>
<td>50</td>
<td>52</td>
<td>2</td>
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</tr>
<tr>
<td>Foothill Blvd. to Swedes Flat Rd.</td>
<td>47</td>
<td>48</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>S/O Swedes Flat Rd.</td>
<td>50</td>
<td>50</td>
<td>0</td>
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</tr>
<tr>
<td>Palermo Rd.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Palermo Rd. to Lincoln Blvd.</td>
<td>49</td>
<td>50</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Lincoln Blvd. to Lone Tree Rd.</td>
<td>49</td>
<td>50</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Lone Tree Rd. to SR 70</td>
<td>49</td>
<td>51</td>
<td>2</td>
<td>No</td>
</tr>
<tr>
<td>Pentz Rd.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 70 to Messilla Valley Rd.</td>
<td>52</td>
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<tr>
<td>Messilla Valley Rd. to Malibu Dr.</td>
<td>54</td>
<td>55</td>
<td>1</td>
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<tr>
<td>Skyway</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 99 to Notre Dame Blvd.</td>
<td>63</td>
<td>63</td>
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<td>No</td>
</tr>
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<td>Notre Dame Blvd. to Bruce Rd.</td>
<td>62</td>
<td>62</td>
<td>0</td>
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### Table 4.10-10  **Existing and 2030 Traffic Noise Levels** (continued)

<table>
<thead>
<tr>
<th>Roadway Segment</th>
<th>Existing L(_{dn}) at 100 Feet from Roadway Centerline</th>
<th>2030 L(_{dn}) at 100 Feet from Roadway Centerline</th>
<th>Change in Noise</th>
<th>Significant Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruce Rd. to Honey Run Rd.</td>
<td>67</td>
<td>67</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>Honey Run Rd. to Neal Rd.</td>
<td>66</td>
<td>67</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Neal Rd. to Pearson Rd.</td>
<td>61</td>
<td>62</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Pearson Rd. to Bille Rd.</td>
<td>60</td>
<td>60</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>Bille Rd. to Wagstaff Rd.</td>
<td>59</td>
<td>60</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Wagstaff Rd. to Clark Rd.</td>
<td>57</td>
<td>57</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>Clark Rd. to Pentz Rd</td>
<td>59</td>
<td>59</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>Pentz Rd. to S. Park</td>
<td>59</td>
<td>59</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>South Park to Nimshew Rd</td>
<td>58</td>
<td>59</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>Nimshew Rd. to Lovelock Rd.</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>Lovelock Rd. to Powellton Rd.</td>
<td>47</td>
<td>48</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td><strong>Table Mountain Blvd.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montgomery St. to County Center Dr.</td>
<td>57</td>
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</tr>
<tr>
<td>County Center Dr. to SR 70</td>
<td>60</td>
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</tr>
<tr>
<td><strong>Ophir Rd.</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East of Feather River Blvd.</td>
<td>57</td>
<td>60</td>
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<tr>
<td><strong>Foothill Blvd.</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South of SR 162</td>
<td>54</td>
<td>55</td>
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<td>No</td>
</tr>
<tr>
<td><strong>Miners Ranch Rd.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South of SR 162</td>
<td>53</td>
<td>55</td>
<td>2</td>
<td>No</td>
</tr>
</tbody>
</table>

**Notes:**
- **Shaded rows** = significant increase.
- Roadway segment of <60 dB increasing by 5 dB qualifies as a significant increase.
- Roadway segment of 60 dB to 65 dB increasing by 3 dB qualifies as a significant increase.
- Roadway segment of >65 dB increasing by 1.5 dB qualifies as a significant increase.

**Source:** ICF Jones & Stokes, 2009.
operations during peak fire season. This increase in operations corresponds to a 1.5 dB increase in noise without fire attack aircraft and a further 1 dB increase during peak fire season. The ALUCP has developed CNEL noise level contours for three scenarios, including the Future Average Fire Season Day, the Expanded Forecast, and the Peak Fire Attack Day. Noise contours for this airport are provided in Appendix E of this EIR.

♦ Oroville Municipal Airport. Future annual average aircraft operations are estimated to increase from 100 to 200 operations per day. This corresponds to a 3 dB increase in noise. The ALUCP contains one set of noise level contours for the airport; they are provided in Appendix E of this EIR.

Paradise SkyPark. Future annual average aircraft operations are estimated to increase from 41 to 82 operations per day. This corresponds to a 3-dB increase in noise. The ALUCP contains one set of noise level contours for the airport; they are provided in Appendix E of this EIR.

♦ Ranchaero Airport. Future annual average aircraft operations are estimated to increase from 14 to 27 operations per day. This corresponds to 3 dB increase in noise. The ALUCP contains one set of noise level contours for the airport; they are provided in Appendix E of this EIR.

These increases in noise are potentially significant depending on the proximity of noise-sensitive uses to each airport.

As discussed in Section D.1.a, General Plan 2030 Health and Safety Element policies would reduce impacts related to the exposure of people to or generation of noise levels in excess of local standards to a less-than-significant level. However, proposed General Plan 2030 policies would not mitigate the significant impacts from traffic noise increases and aircraft noise increases on ambient noise levels in all cases. This traffic and aircraft operation is an unavoidable outcome of the type of residential and commercial growth foreseen in Butte County. Therefore, the proposed General Plan 2030 is considered to have a significant and unavoidable impact on ambient noise levels.
Noise impacts from the ALUCP override are discussed in Section D.1.d.

d. Expose people living or working in the project area to excessive noise from a public or private airport.

The assessment of the exposure of people to noise from an airport in this section is based on an analysis of the spatial location of development allowed by General Plan 2030. Aircraft noise contours presented in Appendix E are representative of aircraft noise contours predicted to occur at buildout of General Plan 2030. Noise sensitive uses in the vicinity of these noise sources could be exposed to noise levels that exceed existing General Plan noise standards. However, Policy HS-P1.3 requires that new noise-sensitive land uses shall not be located within the 55 Ldn contour of airports, roadways, and other noise generating uses, with the exception of the Chico Municipal Airport. Policy HS-P1.4 states that new noise-sensitive land uses shall not be located within the 60 Ldn contour of the Chico Municipal Airport. Implementation of these policies will reduce this impact to a less-than-significant level.

As discussed in Chapter 4.9, Land Use, the General Plan 2030 land use map includes land use designations that are inconsistent with the ALUCP Airport Land Use Compatibility Zones. However, as discussed in Chapter 4.6, Hazards and Safety, both General Plan 2030 and the ALUCP allow a similar type of residential development within the conflict areas; the conflicts are only related to the density of development allowed. Therefore, General Plan 2030 allows residential development only where residential development is deemed appropriate by the ALUCP. The impact from inconsistency with the ALUCP is a land use impact, and not related to the exposure of people to noise in excess of typically acceptable levels. Therefore, the ALUCP override would have a less-than-significant noise impact.

2. Cumulative Impacts

The traffic noise levels predicted in 2030 and evaluated in Section D.1 are based on cumulative traffic conditions that take into account cumulative development in the county, including development within the incorporated
municipalities. As discussed above and shown in Table 4.10-10, implementation of General Plan 2030 is predicted to result in permanently increased traffic noise levels throughout the county, particularly on Highways 70, 99 and 32. Anticipated development in the incorporated cities and in Plumas, Yuba, Sutter, Colusa, Glenn and Tehama Counties will also contribute increased traffic to these and other major regional roadways. Although traffic noise may be somewhat reduced through changes in vehicle types, such as the increased use of electric vehicles and the use of quiet pavement, implementation of General Plan 2030 would still be expected to contribute to cumulative noise conditions that exceed County noise standards and that cause a substantial permanent increase in ambient noise levels. Since this traffic is an unavoidable outcome of the type of residential and commercial growth foreseen in Butte County and the surrounding counties, this impact is significant and unavoidable.

E. Maximum Theoretical Buildout

The maximum theoretical buildout allowed under General Plan 2030 would include significantly more development than the projected 2030 buildout analyzed in Section D. Under these conditions, both the amount and the extent of development would be increased, which would in turn increase the potential for noise impacts. However, as discussed in Chapter 3, it is unlikely that maximum theoretical buildout would ever occur under General Plan 2030, and an analysis of maximum theoretical buildout is not required by CEQA.

F. Impacts and Mitigation Measures

Impact NOISE-1: Implementation of General Plan 2030 would cause a substantial permanent increase in ambient noise levels because more people would be living, driving and flying in Butte County.

General Plan 2030 Health and Safety Element policies would reduce many noise exposure impacts to a less-than-significant level, but would not mitigate
the significant impacts from traffic noise increases and aircraft noise increases on ambient noise levels in all cases. Since this traffic and aircraft operation is an unavoidable outcome of the type of residential and commercial growth foreseen in Butte County, there is no feasible mitigation measure to reduce this impact to a less-than-significant level. Therefore, this impact is significant and unavoidable.

Impact NOISE-2: Implementation of General Plan 2030 would contribute to conditions that exceed County noise standards and that cause a substantial permanent increase in ambient noise levels, causing a significant cumulative noise impact.

General Plan 2030 would contribute to cumulative traffic noise conditions that exceed County noise standards. Since this traffic is an unavoidable outcome of the type of residential and commercial growth foreseen in Butte County and the surrounding counties, this impact is significant and unavoidable.
This chapter discusses population and housing in Butte County and evaluates the potential impacts associated with General Plan 2030 and the Airport Land Use Compatibility Plan (ALUCP) override. The following evaluation is based on both a quantitative and spatial analysis, and assesses population growth and the displacement of housing and people that would necessitate the construction of housing elsewhere.

A. Regulatory Setting

This section summarizes key State and County regulations and policies pertaining to population and housing in Butte County.

1. Regional Housing Needs Allocation

The California Department of Housing and Community Development (HCD) identifies the supply of housing necessary to meet the existing and projected growth in population and households in the State, and passes a portion along to each of the State’s 38 Councils of Governments (COG). As the local COG, the Butte County Association of Governments (BCAG) receives a Regional Housing Needs Allocation (RHNA) that specifies the number of units, by affordability level, that the County and other jurisdictions within the planning area must plan to accommodate during its Housing Element planning period.

Butte County’s fair share of housing has been decreasing over time as growth has shifted toward incorporated cities. The RHNA requirements for the unincorporated area of the county for the 2007 to 2014 planning period, including both initial distribution and replacement housing needs for the dilapidated housing stock, is 3,402 units.¹

2. Butte County Housing Element

The most recent Butte County Housing Element was adopted on August 25, 2009 and is intended to satisfy the State’s housing requirements. The Housing Element consists of a Housing Needs Assessment, which identifies current and projected housing needs, and a supporting Policy Document, which sets forth goals, policies, and implementation programs that meet the needs of all income segments of the community and of future residents, including the following:

♦ Programs that would create affordable housing units.
♦ Policy changes intended to facilitate the construction of affordable housing.
♦ Designation of sites as potential locations for the construction of new affordable housing units.
♦ Policies and programs to encourage and support the production, preservation and rehabilitation of housing affordable to all economic segments of the community, including populations with special needs such as the homeless, elderly, large families, disabled persons, and farmworkers.

Although the Housing Element is a required element of the County’s General Plan, this EIR does not cover the Housing Element that was adopted on August 25, 2009 as part of General Plan 2030. The CEQA review of the Final Housing Element was covered in an Initial Study and Negative Declaration published on June 23, 2009 and available for public comment until July 22, 2009. However, as noted in Chapter 3, Project Description, the County has proposed revisions to the Housing Element in order to bring it into conformance with General Plan 2030 and the requirements of State law. This revised Housing Element is based on the proposed land use map that is included in General Plan 2030 and evaluated by this EIR.
B. Existing Conditions

This section discusses the existing conditions pertaining to population and housing within Butte County.

1. Population

According to California Department of Finance (DOF) data, the population of Butte County, including the incorporated municipalities, was approximately 220,700 people in January 2009.\(^2\) The 2009 population reflects an 8.3 percent increase over 2000 State population estimates. The majority of these residents, approximately 136,800 people, live in the incorporated municipalities. The balance of these residents, approximately 83,900 people, lives in the county’s unincorporated areas.\(^3\) Table 4.11-1 depicts population and household trends from 1990, 2000, and 2009. Although the total county population has been increasing, the population of the unincorporated portion of Butte County has generally been declining since 1990 due to annexation.

According to BCAG’s population projections, unincorporated Butte County will add 30,800 new residents by 2030, reaching a total population of 114,700 residents,\(^4\) which represents a 37 percent increase from the 2009 population. The state as a whole is also expected to grow by 37 percent during the same time period.\(^5\)

---


### TABLE 4.11-1  POPULATION TRENDS IN BUTTE COUNTY

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Butte County Population</td>
<td>182,120</td>
<td>203,171</td>
<td>220,748</td>
<td>8.7%</td>
</tr>
<tr>
<td>Unincorporated Butte County Population</td>
<td>98,461</td>
<td>96,042</td>
<td>83,915</td>
<td>-14.8%</td>
</tr>
<tr>
<td>Total Butte County Average Household Size</td>
<td>2.38</td>
<td>2.40</td>
<td>2.33</td>
<td>-2.1%</td>
</tr>
<tr>
<td>Unincorporated Butte County Average Household Size</td>
<td>2.56</td>
<td>2.56</td>
<td>2.47</td>
<td>-3.5%</td>
</tr>
</tbody>
</table>


### 2. Housing

According to DOF data, there are approximately 37,000 dwelling units in unincorporated Butte County in 2009, with an overall 9 percent vacancy rate. This represents almost a 10 percent reduction from the number of housing units in 2000, which results from annexation of these units into incorporated jurisdictions, and a slight increase in the vacancy rate in 2000. Of these dwelling units, the majority are detached single-family homes, followed by mobile homes. Table 4.11-2 depicts the housing trends in Butte County between 2000 and 2009.

There are approximately 2.47 persons per household (PPH) in unincorporated Butte County in 2009, which is somewhat higher than that for the whole county, which is 2.33 PPH, as shown in Table 4.11-1. The PPH in unincorporated Butte County remained constant in 1990 and 2000, but has decreased by 3.5 percent in 2009.
Table 4.11-2  **Housing Trends in Unincorporated Butte County**

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2009</th>
<th>% Change 2000 to 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing Units</td>
<td>40,758</td>
<td>37,041</td>
<td>-9.20%</td>
</tr>
<tr>
<td>Vacancy Rates</td>
<td>8.74%</td>
<td>9.0%</td>
<td>2.97%</td>
</tr>
</tbody>
</table>


According to BCAG’s growth projections, there will be an additional 12,700 housing units, for a total of 49,700 dwelling units, in 2030, representing a 34 percent increase.6

C. **Standards of Significance**

General Plan 2030 and the ALUCP override would have a significant population or housing impact if they would:

♦ Induce substantial unexpected population growth or growth for which inadequate planning has occurred, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

♦ Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere.

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

---

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative population and housing impacts that could occur as a result of the projected 2030 buildout of General Plan 2030. Implementation of the ALUCP override would have no population or housing impact in Butte County, and is not discussed further in this section.

1. Project Impacts
   a. Induce substantial unexpected population growth or growth for which inadequate planning has occurred, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

   The assessment of population growth in this section is based on a quantitative analysis of impacts resulting from the projected 2030 buildout of General Plan 2030. General Plan 2030 is projected to result in the development of approximately 13,700 residential units within unincorporated Butte County by 2030. Additionally, General Plan 2030 is projected to result in the development of approximately 1.1 million square feet of industrial space and approximately 1.8 million square feet of commercial space. The increase of 13,700 residential units would translate to an increase of approximately 33,800 new residents, assuming the average household size of 2.47 residents.7 The majority of the new residential units are projected to develop within the Spheres of Influence (SOIs) of the incorporated municipalities and in existing unincorporated communities.

   The population growth anticipated through implementation of General Plan 2030 would be similar to that anticipated by BCAG in its population projections for unincorporated Butte County. Implementation of the projected

   7 State of California, Department of Finance, May 2009, E-5 Population Estimates for Cities, Counties and the State, 2001 to 2009, with 2000 Benchmark. Sacramento, California. The increase of 33,800 residents was determined by multiplying 2.47 PPH to the projected 2030 buildout of General Plan 2030 of 13,700 new dwelling units.
buildout of General Plan 2030 would add approximately 33,800 new residents, which is about 2,800 residents more than anticipated by BCAG in its population projections, or about a 9 percent increase.

General Plan 2030 includes several policies that will ensure responsible development within Butte County. Land Use Element Goal LU-2 and its associated policies call for orderly, well-planned, and balanced growth. Policies LU-P2.3 and LU-P2.4 support planning efforts in unincorporated communities through the development of community visions, area plans, urban growth boundaries, community boundaries, and SOIs. In addition, Policy LU-P15.2 requires that new urban development be primarily located in or immediately adjoining already urbanized areas.

Goal LU-8 promotes development near existing infrastructure and services and within already-developed areas. Policy LU-P8.1 directs industry to be located near major transportation facilities. Policy LU-P8.2 requires that the County direct projected growth to areas where the appropriate level of transportation infrastructure is or will be available during the planning period. In addition, Policies LU-P15.3, LU-P8.3, LU-P8.4, and LU-P8.5 promote efficient infill development near public facilities.

Because the population growth under General Plan 2030 would be similar to the level of growth anticipated by BCAG, and because General Plan 2030 includes policies that ensure that population growth is accommodated through responsible development, the proposed project would have a less-than-significant population growth impact.

b. Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere.

The assessment of housing displacement in this section is based on a spatial analysis of impacts resulting from implementation of General Plan 2030. General Plan 2030 would not result in the displacement of substantial amounts of housing. Overall, General Plan 2030 would allow an increase in the total number of housing units in unincorporated Butte County from
37,000 to 50,600 units, a 37 percent increase. No substantial redevelopment projects are envisioned, and the majority of development proposed by General Plan 2030 would occur as residential and non-residential uses are developed on vacant or underutilized parcels. If redevelopment under General Plan 2030 occurs, there is the potential that it would displace existing residential units. However, all redevelopment of parcels would be voluntary in nature, and no housing units would be displaced without permission of the property owners.

In addition, General Plan 2030 includes policies and actions that reduce impacts of development on existing housing units. Land Use Element Policy LU-P4.1 requires that the integrity and stability of existing residential neighborhoods be promoted and preserved.

Furthermore, the County’s existing Housing Element includes additional goals and policies that would help to prevent impacts related to the displacement of housing. Goal H-3 of the 2009 Housing Element and its associated policies and actions aim to preserve and rehabilitate the existing supply of housing. Policies H-P3.2 and H-P3.4 and Action H-A3.2 address funding to rehabilitate existing housing. Policy H-P3.1 and Action H-A3.1 address code enforcement needs in order to maintain housing in adequate condition. These existing policies and actions will help to maintain the existing housing stock.

Because General Plan 2030 would allow a net increase of housing and would not envision substantial redevelopment projects, because General Plan 2030 includes policies and actions that preserve existing neighborhoods, and because housing is protected and preserved under the adopted 2009 Housing Element, the proposed project would have a less-than-significant impact related to housing displacement.
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

The assessment of the displacement of people in this section is based on a spatial analysis of impacts resulting from implementation of General Plan 2030. As discussed in Section D.1.b, implementation of General Plan 2030 is not expected to result in the displacement of a substantial number of housing units. General Plan 2030 would allow an increase in the total number of housing units in unincorporated Butte County from 37,000 to 50,600 units, a 37 percent increase. Furthermore, implementation of General Plan 2030 is projected to result in a net increase of 1.8 million square feet of commercial use and 1.1 million square feet of industrial use, which may serve as places of employment within Butte County.

As a result, General Plan 2030 is not expected to displace substantial numbers of people who either live, work or do both within Butte County. Therefore, the proposed project would have a less-than-significant impact regarding the displacement of people.

2. Cumulative Impacts

As discussed in Section D.1, General Plan 2030 includes policies and actions to ensure responsible development in Butte County. General Plan 2030 would not cause substantial unexpected population growth and would improve jobs and housing opportunities in the county. Growth would also occur outside of unincorporated Butte County in other nearby cities and counties. These jurisdictions are required by State law to use the General Plan process, as well as other planning processes, such as utility master plans, to plan for and control future growth. As a result, General Plan 2030 would have a less-than-significant cumulative impact related to population and housing.

E. Maximum Theoretical Buildout

The maximum theoretical buildout allowed under General Plan 2030 would include significantly more development than the projected 2030 buildout ana-
lyzed in Section D in terms of both the amount and the extent of development. Therefore, the potential for impacts to population and housing would increase. In particular, maximum theoretical buildout would result in substantial population growth. However, as discussed in Chapter 3, it is extremely unlikely that maximum theoretical buildout would ever occur under General Plan 2030. Therefore, an analysis of maximum theoretical buildout is not required by CEQA.

F. Impacts and Mitigation Measures

Since there are no significant impacts related to population and housing as a result of General Plan 2030, no mitigation measures are required.
This chapter discusses public services and recreation in Butte County, and includes evaluation of the impacts associated with the projected 2030 buildout of General Plan 2030 with regard to police, fire, schools, libraries, and parks and recreation. This section is based on a quantitative analysis of anticipated population growth, although it also considers the spatial distribution of population growth across public service and recreation districts. Implementation of the Airport Land Use Compatibility Plan (ALUCP) override would have no public service or recreation impact in Butte County, and is not discussed further in this chapter.

Analysis of impacts related to public safety, including impacts from exposure to fire hazards, is included in Section 4.7, Hazards and Safety, of this EIR.

A. Police

This section describes current conditions and potential impacts of the proposed General Plan 2030 with regard to police services in Butte County.

1. Existing Conditions

Law enforcement services in Butte County are provided by the Butte County Sheriff’s Office, the California Highway Patrol, and police agencies in the Cities of Chico, Oroville, Gridley, and Biggs and the Town of Paradise.

a. Butte County Sheriff’s Office

The Butte County Sheriff’s Office (BCSO) is responsible for law enforcement, criminal investigation, and crime prevention in the unincorporated areas of the county. The BCSO is also the countywide coordinator for mutual aid situations and maintains mutual aid agreements with the California Highway Patrol and the municipal police departments. The BCSO has its main office in Oroville, with sub-stations in Chico and Magalia. The BCSO is responsible for operating the County Jail, which is utilized by all law enforcement agencies within Butte County.
BCSO sworn personnel include the Sheriff, Undersheriff, captains, lieutenants, sergeants and deputies; non-sworn personnel include correctional lieutenants, sergeants, officers and technicians, public safety dispatchers and clerical staff. Of the sworn personnel, four deputy sheriffs are assigned to one of eight patrol teams and each team is supervised by a sergeant, dependent on being fully staffed. Another 19 deputy sheriffs and two sergeants are assigned to a contract with the courts, with the remainder assigned to designated area deputy positions, administration, narcotics, marijuana eradication, boat patrol, criminal investigations, internal affairs, background investigation, specialized units and the jail.

The BCSO has divided the county into north and south service areas. Twenty-four hour patrol service is provided. Typically, one deputy is assigned per car. Patrol teams operate in response to specific incidents. The department encourages preventative patrol or non-directed activity with a target of 20 to 25 percent of each deputy’s shift devoted to self-initiated activity.

b. California Highway Patrol

The California Highway Patrol (CHP) provides law enforcement services, primarily traffic control, for State roads and roads in the unincorporated portions of the county. These services include traffic control, accident investigation, and licensing of vehicles. The CHP has a mutual aid agreement with the BCSO and will respond when requested by the Sheriff.

The CHP has two offices that serve Butte County. The county is divided into north and south regions at the intersection of State Routes 99 and 149. The north district office, located in Chico, has 28 uniformed staff, including 24 officers, three sergeants and one captain. The office has twelve vehicles in operation. Typical staffing has three to four units during the day and evening shifts, and one two-person unit during the graveyard shift. The north district office is also the dispatch center for the region. The CHP’s south office, lo-

1 Kuhn, John, Lieutenant, Butte County Sheriff’s Office, personal communication with Jessica Daniels, DC&E, August 12, 2009.

4.12-2
located in Oroville, has 24 officers, four sergeants and one lieutenant. The office has ten vehicles in operation, with similar staffing as the north district office.\(^2\)

The normal deployment/distribution of CHP personnel is based upon traffic volume and accident rates within the county. Areas with a high incidence of accidents or traffic control problems are patrolled on a regular basis. There are many areas of the county, particularly in the foothills, which are outside regular CHP patrols and visited only when called.

c. Municipal Police Departments
The BCSO maintains mutual aid agreements with the Oroville, Chico, Gridley, Biggs, and Paradise municipal police departments. Municipal police departments are responsible for protecting the citizens and property within their jurisdictions. Under the terms of the mutual aid agreements, the BCSO can assume that role in these jurisdictions upon request or in the event of the inability of municipal police departments to provide police enforcement.\(^3\)

i. Gridley-Biggs Police Department
The Gridley-Biggs Police Department is responsible for protecting the citizens and property in the City of Gridley and the City of Biggs. The Department operates one police station.\(^4\) The station is staffed by a Police Chief, Assistant Chief, three sergeants and eleven sworn officers. The Department provides a variety of support services to the City of Gridley and the City of Biggs, as well as the surrounding unincorporated area.\(^5\) These services include

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\(^2\) Sherman, Mike, Lieutenant, California Highway Patrol, personal communication with Lisa Katz, DC&E, September 21, 2009.

\(^3\) Kuhn, John, Lieutenant, Butte County Sheriff’s Office, personal communication with Jessica Daniels, DC&E, August 6, 2009.


\(^5\) Keeler, Gary, Police Chief, Gridley-Biggs Police Department, personal communication with Jessica Daniels, DC&E, August 12, 2009.
animal control, a reserve force, a gang task force and a volunteer senior corps. The Department provides 24-hour emergency service.

**ii. Chico Police Department**

The City of Chico Police Department covers a district that is approximately 30 square miles and serves the residents in the City of Chico. The Department is staffed by 97 sworn police officers, which are part of the Operations Division. The Operations Division provides a patrol section, crisis negotiation, special weapons and tactics (SWAT), a traffic unit, downtown bicycle patrol, and neighborhood watch. The Support Division, which consists of 52 employees, is staffed 24 hours a day, seven days a week and dispatches both police and fire department personnel.

**iii. Oroville Police Department**

The City of Oroville Police Department has 20 sworn police officers that protect the City of Oroville, including four sergeants and 16 officers. The Department provides community patrol, SWAT, neighborhood watch, school resource officers, and participates in the Butte Inter-Agency Narcotics Task Force.

**iv. Paradise Police Department**

The Paradise Police Department serves the Town of Paradise. The Department is staffed by the Police Chief, two lieutenants, four sergeants, and 17 sworn officers. There are 23 support staff members, including emergency dispatchers, criminal records technicians, shelter assistants and administration. The Department provides the following special units: a special response team, a K9 unit, a narcotics task force, school resource officers and animal

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control. In addition, the Department participates in the Butte Inter-Agency Narcotics Task Force.8

2. Standards of Significance
General Plan 2030 would have a significant impact with regard to police services if it would:

♦ Result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities, or result in the need for new or physically altered police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

3. Impact Discussion
The following discussion provides an analysis of potential project and cumulative police service impacts that could occur as a result of the projected 2030 buildout of General Plan 2030.

a. Project Impacts
i. Result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities, or result in the need for new or physically altered police facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

Implementation of General Plan 2030 is projected to result in approximately 33,800 new residents by 2030, which would increase the need for police services. To continue to provide the current level of service, approximately 17 additional sworn officers would need to be added to the BCSO. To support the additional officers, it is likely that supplementary support staff, equipment and increased facility space would also be needed. Additionally, increased staffing and funding would be needed in the following criminal justice departments: District Attorney, Public Defender, and Probation.

8 Lynch, Valerie, Administrative Assistant, Town of Paradise Police Department, personal communication with Jessica Daniels, DC&E, August 11, 2009.
General Plan 2030 includes policies that support police services. Public Facilities and Services Element Policy PUB-P3.1 supports the expansion of volunteer services for law enforcement, and Policy PUB-P3.2 supports citizen efforts to strengthen and expand neighborhood watch programs, including in commercial areas. In addition, Land Use Element Policy LU-P9.1 directs the County to work with municipalities and service providers to ensure that services are available for new development and consistent with master plans.

As indicated above, as new development occurs, new or expanded police facilities may be needed to support the associated population growth. It is not known at this point when such facilities would be required or what the exact nature of these facilities would be. As a result, it cannot be determined what project-specific environmental impacts would occur from their construction and operation. The potential impacts would be identified during the facility planning process. However, General Plan 2030 requires that County facilities be designed, constructed, and operated to be environmentally sustainable and beneficial to the community and the region through Policy PUB-P1.2.

As a result of the proposed policies, police services impacts would be less than significant.

b. Cumulative Impacts
Future regional growth would result in increased demand for police services throughout the region. Additionally, Butte County provides law enforcement services to neighboring jurisdictions via mutual aid agreements and calls upon them for assistance. However, as Butte County would provide for additional police services within its own boundaries and would be required to address the potential environmental impacts of the development of additional or expanded police facilities, General Plan 2030 would have a less-than-significant cumulative impact related to police services.

4. Impacts and Mitigation Measures
Since there are no significant impacts related to police services as a result of General Plan 2030, no mitigation measures are required.
B. Fire Protection

This section describes current conditions and potential impacts of the proposed General Plan 2030 with regard to fire protection services in Butte County.

1. Existing Conditions
The Butte County Fire Department (BCFD) and the California Department of Forestry and Fire Protection (CAL FIRE) provide fire and emergency services to the entire unincorporated county population, protecting over 1,600 square miles, with the exception of the Cities of Chico and Oroville, the Town of Paradise, and the El Medio Fire Protection District.

a. Butte County Fire Department and the California Department of Forestry and Fire Protection
Since 1931, the County has contracted with CAL FIRE to provide staffing to the BCFD through an annual cooperative agreement. Under the terms of this agreement, the County funds CAL FIRE professional command, firefighting, and administrative staff to operate the BCFD. Through this arrangement, CAL FIRE and the BCFD function together as a fully consolidated fire protection agency and provide cost-effective fire protection service for Butte County.

BCFD/CAL FIRE services include fire control for structural, vegetation, vehicular, and other unwanted fires; emergency medical services; technical rescue response; hazardous materials response; flood control assistance; fire prevention and public safety education; fire law enforcement/arson investigation; and vegetation management. In addition, BCFD/CAL FIRE operates countywide dispatch services, coordinates major emergency response within the county as the Office of Emergency Service’s mutual aid coordinator, and provides training for career and volunteer fire fighters. In addition to fire engine responses, the Department’s Emergency Command Center (ECC) provides Emergency Medical Dispatch (EMD) services.
There are twelve BCFD stations staffed with career fire fighters and 19 volunteer fire companies. During the seven months outside of the peak fire season, the County also provides funding for six CAL FIRE stations to provide year-round protection to county residents in Forest Ranch, Jarbo Gap, Paradise, Robinson Mill, Harts Mill, and Stirling City. CAL FIRE staffs 16 fire season units altogether, including the six mentioned above. The CAL FIRE stations are located mainly in the foothills of the eastern portion of the county. In addition, CAL FIRE operates the Chico Air Attack Base during the summer season.

The year-round BCFD stations, situated in a number of communities, were built to serve the needs of expanding local populations. Until recently, each of the twelve BCFD stations was staffed with at least two firefighters 24 hours per day. Currently, there are “rolling brown outs” of two stations due to budget cuts. In other words, two stations are closed at a given time. The BCFD is directly funded through the County’s General Fund, and the annual budget for the 2009/10 fiscal year is approximately $12 million. A Capital Outlay Budget Change Proposal was submitted by CAL FIRE to staff the Butte Fire Center, located in Magalia, as a conservation camp. If funded and built, CAL FIRE and the California Department of Corrections and Rehabilitation will jointly run the Butte Conservation Camp at that location.

The need for additional fire stations and replacement of existing stations is being considered by Butte County. The County’s Capital Improvement Program (CIP) will help guide the BCFD in infrastructure improvement decisions. In addition, a Standards of Cover Study, completed in 2007, will assist the BCFD in station location decisions. The Study provided average service

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9 Kim, Sang, Deputy Butte County Chief Administrator, personal communication with DC&E, December 4, 2009.
10 Damon, Matt, Fire Captain – Deputy Fire Marshal, CAL FIRE/Butte County Fire Department, personal communication with Lisa Katz and Jessica Daniels, DC&E, August 31, 2009.
11 Standards of Response Cover Study for the Butte County Fire Department, Deployment Performance Standards (Exhibit B), August 19, 2008.
response times to specific locations throughout the county. Based on the recommendations of the Study, the Board of Supervisors adopted the BCFD Deployment Performance Standards on August 19, 2008. These standards are:

- Population equal to or greater than 1,000 people per square mile or industrial, agricultural or infrastructure of high value:12
  - For emergencies requiring a single fire engine response the first due engine shall arrive within 7 minutes of the 911 call 90 percent of the time, countywide.
  - For emergencies requiring multiple engines and an effective force of 15 fire fighters, they shall arrive within 11 minutes of the 911 call 90 percent of the time, countywide.

- Population of 500 to 1,000 people per square mile:
  - For emergencies requiring a single fire engine response the first due engine shall arrive within 13 minutes of the 911 call 90 percent of the time, countywide.
  - For emergencies requiring multiple engines and an effective force of 15 fire fighters, they shall arrive within 18 minutes of the 911 call 90 percent of the time, countywide.

- Population less than 500 per square mile:
  - For emergencies requiring a single fire engine response the first due engine shall arrive within 17 minutes of the 911 call 90 percent of the time, countywide.
  - For emergencies requiring multiple engines and an effective force of 15 fire fighters, they shall arrive within 23 minutes of the 911 call 90 percent of the time, countywide.

12 “Industrial, agricultural or infrastructure facilities of high value” are defined as facilities that are important to the economic wellbeing of the citizens of Butte County. These facilities may be indentified by calculated fire flow of 3,500 GPM or more, significant research or educational value, and other facilities as determined by the Fire Department and other appropriate county offices.
Butte County is currently working to replace the Bangor Fire Station. In addition, Station 41 in Nord is slated for replacement as funds and grants become available.\textsuperscript{13}

\textit{i. Automatic Aid Agreements}

The BCFD has established automatic aid agreements with other fire protection agencies to provide optimal fire protection service to the entire county. Automatic aid agreements allow the resources nearest to an emergency situation to be dispatched on the first alarm regardless of jurisdiction. The BCFD has automatic aid agreements with every fire-fighting agency in the county, as well as with the US Forest Service, Lassen and Plumas National Forests, Hamilton City in Glenn County, Sutter County, Tehama County, and several fire districts in Yuba County. Additionally, under contract the BCFD/CAL FIRE ECC provides dispatching services for the Oroville Fire Department and the El Medio Fire Protection District.

\textit{ii. Volunteer Fire Companies}

BCFD is supported by 200 active volunteer fire fighters who are organized into 16 local companies. The volunteer companies are dispatched by the CAL FIRE/BCFD ECC as needed. The volunteer companies make up an essential part of the County fire protection system, often providing the first response to an emergency in the rural portions of the county that are some distance from a BCFD or CAL FIRE station. Although the volunteer companies are organized within and supported by the local communities, they operate as part of the countywide fire protection system and receive regular training by the BCFD and CAL FIRE career fire fighters.\textsuperscript{14}

\textsuperscript{13} Damon, Matt, Fire Captain – Deputy Fire Marshal, CAL FIRE/Butte County Fire Department, personal communication with Lisa Katz and Jessica Daniels, DC&E, August 31, 2009.

\textsuperscript{14} Damon, Matt, Fire Captain – Deputy Fire Marshal, CAL FIRE/Butte County Fire Department, personal communication with Lisa Katz and Jessica Daniels, DC&E, August 31, 2009.
b. Chico Fire Department
The City of Chico Fire Department operates six fire stations and one fire training center. The stations are staffed by 70 full-time fire fighters and two full-time and one part-time administrative assistant. Additionally, a volunteer company of 23 fire fighters is on call in case of a large scale emergency. The Department provides response to structural, vegetation, vehicle and other unwanted fires, medical aid, and other rescue services to Chico city residents. The area covered by the City of Chico Fire Department is 31 square miles. In accordance to the Chico Urban Area Fire and Rescue Agreement (an automatic-aid agreement), the Department provides first response to emergencies in the unincorporated county area surrounding the city, when the City engine is the closest resource. In exchange, County resources respond to city emergencies when a County engine is the closest resource.\(^\text{15}\)

c. Oroville Fire Department
The City of Oroville Fire Department operates one fire station that is staffed by 17 full-time personnel, which consists of one interim fire chief, 15 fire fighters, and one administrative assistant. There are no fire fighters working on an on-call basis at this time; however, the Department does operate an internship program. The area covered by the Department is 13 square miles. The Department provides service to Oroville city residents and, through an automatic aid agreement with BCFD, provides first response in the unincorporated county surrounding the city when the City engine is the closest resource. In exchange, County resources respond to city emergencies when a County engine is the closest resource.\(^\text{16}\)

d. Paradise Fire Department
The Town of Paradise Fire Department operates three fire stations. The stations are staffed by 20 full-time paid firefighters, 17 volunteer fire fighters, and six support volunteers. The Department covers an 18-square-mile area.

\(^{15}\) Morris, Kate, Administrative Assistant #2, Fire Department, City of Chico, personal communication with Lisa Katz, DC&E, August 24, 2009.

\(^{16}\) Copeland, Aaron, Engineer, Fire Department, City of Oroville, personal communication with Lisa Katz, DC&E, August 24, 2009.
The Department responds to structural, vehicular and wildland fires; provides hazardous material clean-up, rescue and medical aid services for people in the town limits; and provides services in the unincorporated area surrounding the town through an automatic aid agreement with BCFD. In exchange, County resources respond to town emergencies when a County engine is the closest resource.17

e. El Medio Fire District
The El Medio Fire District (EMFD) operates a single station located in South Oroville. Ten full-time firefighters and several volunteers staff the station.18 The EMFD covers approximately 2.3 square miles, and provides response to structural, vegetation, vehicle and other unwanted fires, as well as medical aid and other rescue services to over 4,000 people. EMFD contracts with CAL FIRE/BCFD for dispatch services. It also has an automatic aid agreement with BCFD and the City of Oroville.19 The automatic aid agreement between EMFD, BCFD and the Oroville Fire Department was recently updated to allow EMFD to respond to fires within the Oroville city limits. Previously, EMFD did not respond to any calls within the city limits. Each entity has signed the update, but financial issues related to the change are still being finalized.20,21

The District’s average response time to the furthest location from the station is three minutes and 45 seconds. This is well under the national average of a five-minute response time. The District is currently trying to obtain funding to construct a new fire station to house its firefighters and equipment. No funding has been identified yet, and the existing station is currently over ca-

17 Dawson, Terry, Administrative Assistant, Fire Department, Town of Paradise, personal communication with Lisa Katz, DC&E, August 24, 2009.
18 Ohlhausen, Michael, Chief, El Medio Fire Department, personal communication with Tanya Sundberg, DC&E, July 9, 2009.
20 City of Oroville, October 1, 2009, Final Municipal Services Review.
capacity. Funding deficiencies also exist for personnel. The District needs an additional two to three firefighters to meet current needs. Existing equipment is adequate for the station’s current size.22

2. Standards of Significance

General Plan 2030 would have a significant impact with regard to fire protection services if it would:

♦ Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or result in the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

3. Impact Discussion

The following discussion provides an analysis of potential project and cumulative fire protection service impacts that could occur as a result of the projected 2030 buildout of General Plan 2030.

a. Project Impacts
   i. Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or result in the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

New growth under General Plan 2030 would result in new population and residential, commercial and industrial development in unincorporated Butte County, which would increase demand for fire protection services. As a result, additional staff and equipment would be required to maintain or improve current response times. It is likely that new or expanded facilities would be required, which could include new fire houses or outdoor training

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22 Ohlhausen, Michael, Chief, El Medio Fire Department, Butte County, personal communication with Tanya Sundberg, DC&E, July 9, 2009.
areas, depending on the extent to which BCFD/CALFIRE would be required to expand capacity. It is not known at what time or location such facilities would be required in Butte County or what the exact nature of these facilities would be. New or expanded facility locations will be influenced by population growth in order to serve county residents. As a result, it cannot be determined what project-specific environmental impacts would occur from their construction and operation. These potential impacts would be identified during the facility site selection process. However, General Plan 2030 requires that County facilities be designed, constructed, and operated to be environmentally sustainable and beneficial to the community and the region through Policy PUB-P1.2.

In addition, the proposed General Plan 2030 contains policies that aim to provide adequate fire protection and emergency medical response services to serve existing and new development. Policy PUB-P2.2 requires that the adopted Standards of Cover for fire protection be maintained and implemented, and Policy PUB-P2.3 requires that new fire stations be located on sites that are easily accessible, close to existing or future development, and/or close to fire hazard areas. Policy PUB-P2.1 supports the expansion of fire volunteer services, especially in remote areas. In addition, Land Use Element Policy LU-P9.1 directs the County to work with municipalities and service providers to ensure that services are available for new development and consistent with master plans.

Policy LU-P15.2 also helps to minimize fire protection service expansion needs by directing new urban development to already urbanized areas. Health and Safety Element Goals HS-11 and HS-12 and their associated policies reduce fire protection service needs by minimizing fire risks. In particular, Policy HS-P11.4 requires that new development meet current fire safety ordinance standards for adequate emergency water flow, emergency vehicle access, signage, evacuation routes, fuel management, defensible space, fire safe building construction, and wildfire preparedness.
As a result of the proposed policies, fire protection service impacts would be

*less than significant.*

b. Cumulative Impacts

Future regional growth would result in increased demand for fire protection services throughout the region. Additionally, Butte County provides fire protection services to neighboring jurisdictions via mutual aid agreements, as well as calls upon them for assistance. However, as Butte County would provide for additional fire protection services within its own boundaries and would be required to address the potential environmental impacts of the development of additional or expanded fire stations, General Plan 2030 would have a *less-than-significant* cumulative impact related to fire protection services.

4. Impacts and Mitigation Measures

Since there are no significant impacts related to fire protection services as a result of General Plan 2030, no mitigation measures are required.

C. Schools

This section describes current conditions and potential impacts of the proposed General Plan 2030 with regard to schools in Butte County.

1. Existing Conditions

Fourteen local school districts provide elementary and secondary education to the municipalities and unincorporated areas of the county, as shown in Figure 4.12-1. Five of the districts (Biggs, Chico, Durham, Gridley, and Paradise) are unified school districts, serving students from kindergarten through high school. Eight districts (Bangor, Feather Falls, Golden Feather, Manzanita, Oroville City, Palermo, Pioneer, and Thermalito) provide elementary education throughout the rest of the county, feeding students into Oroville Union High School District and Gridley Unified School District for secondary education. In addition, a portion of the Marysville Joint Unified School District extends into Butte County, although it primarily serves Yuba County.
According to the Education Data Partnership report for the fiscal year 2007-08, there were 32,559 students enrolled in public schools in Butte County. There were also 2,241 students enrolled in charter schools in Butte County, for a total Butte County enrollment of 34,800 students.\(^2\) Enrollment has decreased since its peak of 35,304 students during the 1997-98 school year.\(^3\) The local school districts range in size from the single school Feather Falls Union Elementary School District, which had 35 students enrolled during the 2007-08 school year, to the Chico Unified School District, which had 25 schools and an enrollment of 13,486 students during the 2007-08 school year.\(^4\)

a. Bangor Union Elementary School District

The Bangor Union Elementary School District (BUESD) provides elementary education to the community of Bangor and the surrounding unincorporated county area south and east of Oroville.

BUESD has experienced moderate growth over the past several years and is projecting growth to continue at a relatively stable rate, although the recent economic downturn may cause some fluctuation. BUESD also participates in the State class-size reduction program, which makes funding contingent on limiting the class size to 20 students in primary grades. BUESD is approximately 40 square miles in area and operates a single school, Bangor Elementary, with a 2008-09 enrollment of 138 students in kindergarten through


eighth grade. Over the last decade, there has been a slight decline in enrollment from a peak of 160 in the 1990s, falling to between 130 and 150 in the 2000s. Following eighth grade, Bangor students attend school in the Oroville Union High School District. The elementary school, which was built for an enrollment of 75 to 100 students, is operating at capacity. Despite this, BUESD is not experiencing deficiencies such as overcrowding or lack of funding. No major renovations have occurred and no new schools are planned for BUESD, but a modernization project and new gymnasium and multipurpose room are approved for construction, which will add space for two new classrooms.

The annual budget for BUESD is approximately $1.1 million and is declining. Funding is provided by the State, which also funds the construction of new schools in BUESD. Impact fees for schools in the Bangor area are levied on new developments, approximately $3 per square foot, and are collected by the Oroville High School District.

b. Biggs Unified School District
The Biggs Unified School District (BUSD) provides elementary and secondary education to the City of Biggs and surrounding unincorporated county areas. BUSD is approximately 135 square miles in area and operates six schools, with a combined total enrollment of 822 students. The six schools that make up BUSD are described below.

- One campus contains both the Biggs Middle School and Biggs High School. The middle school serves 137 students in seventh and eighth grades, and is separate from the high school, which serves 251 students in

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26 Arnold, Paul, Superintendent, Bangor Elementary Union School District, personal communication with Jessica Daniels, DC&E, July 28, 2009.
27 Arnold, Paul, Superintendent, Bangor Elementary Union School District, personal communication with Jessica Daniels, DC&E, July 28, 2009.
ninth to twelfth grades. Each school has its own core teaching staff, yet both schools share some facilities, such as the music room, cafeteria, gymnasium, and a few classrooms. In addition, the administrator for the middle school is also the high school’s athletic director and principal.

♦ The Biggs Elementary School serves 400 students from kindergarten through sixth grade, participating in the State class-size reduction program for kindergarten through third grade. Originally built in 1951, the Biggs Elementary School has grown from three to 19 rooms, with many added improvements, such as a multipurpose room and playgrounds. BUSD’s maintenance department takes care of all campus buildings, with matching funds from the State, using a series of five-year plans.

♦ The Richvale Elementary School has a total enrollment of 54 students from first through sixth grade. The school has three classrooms and other facilities, including a full-sized gymnasium with a stage and a cafeteria. Like the majority of BUSD facilities, the Richvale Elementary School is eligible for modernization funding through the Office of Public School Construction. BUSD will be working to modernize each school site to ensure that the facilities remain suitable for 21st Century educational activities.

♦ The Biggs Intermediate and Secondary Community Day Schools aim to address the needs of students that have either been expelled or demonstrate chronic behavioral or attendance problems. The school provides a very low student-to-teacher ratio.

To meet future increases in enrollment, BUSD added six portable classrooms for the elementary school and four for the high school in the late 1990s. BUSD owns a vacant, 44-acre site next to the Biggs schools, but it has not made plans to build a new school facility at this time.

c. Chico Unified School District
The Chico Unified School District (CUSD) provides elementary and secondary education to residents of the City of Chico and surrounding unincorporated areas. CUSD serves an area of approximately 322 square miles and op-
erates 26 schools on 25 sites with a combined total enrollment of 12,735 students in the 2008-09 school year.\textsuperscript{30} CUSD has 17 elementary schools that serve kindergarten through sixth grades: Chapman, Chico, Citrus, Cohasset, Emma Wilson, Forest Ranch, Hooker Oak, Little Chico Creek, Marigold, McManus, Neal Dow, Nord, Partridge, Parkview, Rosedale, Shasta, and Sierra View. CUSD also has four junior high schools that serve seventh through eighth grades: Bidwell, Chico, Marsh, and the Academy for Change. The Chico Country Day School serves kindergarten through eighth grades. Four senior high schools serve ninth through twelfth grades: Chico, Pleasant Valley, Oakdale and Fairview Continuation. CUSD has been experiencing declining enrollment over the last decade and is expected to decrease by approximately 100 students during the 2009-10 school year. This declining enrollment is being compounded by the opening of several charter schools in the area.\textsuperscript{31}

CUSD has accommodated continued growth in enrollment by changing school boundaries, reusing existing facilities, modifying existing facilities, allowing intradistrict student transfers, constructing new facilities, and using leased portable facilities. CUSD owns two sites for the construction of future schools. One is for the development of an elementary school campus and the other is intended for a new high school. In addition to the identification and purchase of school sites, CUSD has completed major modernization projects on two of its campuses in the last eight to nine years. New additions are currently underway at both Chico and Pleasant Valley High Schools, including a new Performing Arts Center and buildings for classrooms. Major renovations for these two schools are currently being prioritized as Phase 23 of Measure A, a local General Obligation bond passed by CUSD voters in 1998.

\textsuperscript{30} Combes, Jan, Assistant Superintendent, Chico Unified School District, personal communication with Jessica Daniels, DC&E, August 3, 2009.

\textsuperscript{31} Michael Weissenborn, Facilities Planner/Construction Manager, Chico Unified School District, personal communication with Jessica Daniels, DC&E, September 1, 2009.
CUSD also leases a facility for its Community Day School which serves approximately 90 students.32

Renovation and new construction of CUSD facilities are funded by a variety of sources, including:

♦ Voter-approved State bonds through the School Facility Program;

♦ The Measure A local school bond;

♦ School impact fees of $2.97 per square foot levied on residential development; and

♦ Pass-through of 2 percent of the tax increment revenue generated by redevelopment areas within the City of Chico.

In addition, the State Deferred Maintenance Program matches CUSD funds for major repair or replacement of existing school building components.33 For the 2008-09 school year, maintenance work consisted mainly of roof replacements. The total yearly operating budget for CUSD is approximately $100 million, which does not cover construction costs. Approximately 70 percent comes from State sources, 20 percent from local sources and 10 percent from federal sources.

CUSD’s Student Housing Master Plan forms the basis for long-term planning decisions affecting CUSD facilities and includes a Twenty-Year General Plan and a Five-Year Specific Plan. The Master Plan, with projections covering the next 20 years, is in the process of being reviewed and updated to reflect changing State and local demographics and CUSD and student facilities needs.34

32 Combes, Jan, Assistant Superintendent, Chico Unified School District, personal communication with Jessica Daniels, DC&E, August 3, 2009.
d. Durham Unified School District
The Durham Unified School District (DUSD) provides elementary and secondary education to a 186-square-mile district that includes Durham and its surrounding area. DUSD operates four schools, Durham Elementary School (kindergarten through fifth grade), Durham Intermediate School (sixth through eighth grade), Durham High School (ninth through twelfth grades) and Mission High School (which serves as the alternative high school for ninth through twelfth grades and Continuation), with a combined enrollment of 1,114 students in the 2008-09 academic year.35

DUSD experienced its peak enrollment in 2000-01, with 1,362 students, and has declined steadily at an average rate of 31 students per year. Enrollment is projected to continue declining through the 2009-10 school year.36

DUSD has addressed growth in the past by moving the sixth grade to the intermediate school and through the use of portable classrooms at all schools; however, DUSD schools are currently well under capacity.37

The annual budget for DUSD is approximately $10 million and comes from federal, State and local sources. New schools are funded through State and local sources. The impact fee levied on new development for schools is $2.97 per square foot.

e. Feather Falls Union School District
The Feather Falls Union School District (FFUSD) provides elementary education to the community of Feather Falls and surrounding county areas. FFUSD is approximately 94 square miles in area and operates a single school, Feather Falls Elementary School.

35 Cavanaugh, Connie, Business Manager, Durham Unified School District, personal communication with Jessica Daniels, DC&E, August 6, 2009.
36 Cavanaugh, Connie, Business Manager, Durham Unified School District, personal communication with Jessica Daniels, DC&E, August 6, 2009.
37 Cavanaugh, Connie, Business Manager, Durham Unified School District, personal communication with Jessica Daniels, DC&E, August 6, 2009.
FFUSD enrollment in 2008-09 was 22 students. Enrollment has declined over the last decade and is expected to decrease further in 2009-10. Currently, FFUSD is significantly under its maximum capacity of 400 students. FFUSD has no planned renovations or improvements to the schools or associated facilities at this time; however, a new heating, ventilating, and air conditioning system was installed during the summer of 2009, as well as a new school roof.\(^{38}\)

FFUSD’s total annual budget is approximately $125,000, which comes from federal and State sources. In addition, development impact fees are charged for construction within the District’s boundaries. The impact fee for construction is $2.97 per square foot, of which the District receives 58.2 percent.\(^{39}\)

f. Golden Feather Union School District
The Golden Feather Union School District (GFUSD) provides elementary education to students who reside in approximately 208 square miles of unincorporated county lands to the north and west of Lake Oroville. The GFUSD operates three elementary schools: Spring Valley Elementary School, which serves kindergarten through fourth grade; Concow Elementary School which serves fifth through eighth grade; and Golden Feather Community Day School, which serves kindergarten through eighth grade. Following eighth grade, Golden Feather students attend high school in the Oroville High School District. During the 2008-09 school year there was a combined enrollment of 135 students, which is well under the 350-student capacity of

\(^{38}\) Gaston, Susan, District Secretary, Pioneer Union School District, personal communication with Lisa Katz, DC&E, October 8, 2009.

\(^{39}\) Gaston, Susan, District Secretary, Pioneer Union School District, email communication with Lisa Katz, DC&E, November 10, 2009.
GFUSD. This enrollment is an 18 percent decrease from the 2005-06 enrollment of 159, or approximately eight students per year.

The 2009-10 budget was approximately $1.6 million, of which a combination of federal, State and local revenues provide funding. Concow Elementary School recently underwent renovations to its water system that were funded by a grant from the State.

g. Gridley Unified School District

The Gridley Unified School (GUSD) offers elementary education to residents of Gridley and the surrounding areas. GUSD is approximately 87 square miles in size and operates the following schools: McKinley Primary School, which serves kindergarten through first grade; Wilson Intermediate Elementary School, which serves second through fifth grades; Sycamore Middle School, which serves sixth through eighth grades; and Gridley High School, which serves ninth through twelfth grades. In addition, an alternative education center contains Esperanza Continuation High School (serving tenth through twelfth grades), Gridley Community Day School (serving kindergarten through twelfth grades), Gridley Home School (serving kindergarten through twelfth grades), and Adult Education.

Enrollment for the 2008-09 school year was 2,055 students. None of the schools are at capacity, but McKinley and Wilson schools are experiencing

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40 Schmierer, Marge, Administrative Secretary, Golden Feather Union School District, personal communication with Jessica Daniels, DC&E, September 23, 2009.


42 Schmierer, Marge, Administrative Secretary, Golden Feather Union School District, personal communication with Jessica Daniels, DC&E, September 23, 2009.
overcrowding as they approach capacity. Enrollment is expected to increase in the 2009-2010 school year.\(^43\)

Gridley High School leases a gymnasium from the Butte County Fairgrounds, which is located across the street, and is operating at close to its enrollment capacity. The high school has accommodated growth through the use of a number of portable classroom buildings. In addition, GUSD owns a 15-acre parcel to the west of Sycamore Middle School that would be an ideal site for a new school.

There have been on-going deferred maintenance and routine repairs due to lack of funding. No major renovations are underway or planned. The 2008-09 budget was approximately $16 million and is funded by State funds and property taxes. Impact fees for schools levied on new developments in GUSD are $2.97 for residential projects and $0.47 for commercial projects.

h. Manzanita Elementary School District
The Manzanita Elementary School District (MESD) provides elementary education to the Rancho Boga community area to the south of Gridley. MESD covers approximately 11 square miles and operates a single school, Manzanita Elementary School, with a 2008-09 enrollment of 265 students in kindergarten through eighth grade, just under its capacity of 280 students.\(^44\) This is a slight increase from the 2005-06 enrollment of 250 students.\(^45\) Enrollment during the 2009-10 school year is expected to increase slightly.

\(^{43}\)Redfield, Mark, Superintendent, Gridley Unifies School District, personal communication with Jessica Daniels, DC&E. July 29, 2009.

\(^{44}\)Roberts, Brad, Superintendent, Manzanita Elementary School District, personal communication with Jessica Daniels, DC&E. August 10, 2009.

The total yearly budget for the MESD is $1.6 million, and impact fees are consistent with those found elsewhere in the county. There are currently no plans to build new schools or renovate existing schools.

i. Oroville City Elementary School District
The Oroville City Elementary School District (OCESD) offers elementary education to residents of Oroville and the unincorporated county areas east and south of the city. OCESD is approximately 78 square miles in size and operates the following elementary, middle, and special education schools:

♦ Bird Street Elementary, kindergarten through fourth grades.
♦ Central Middle, seventh through eighth grades and Special Education.
♦ Ishi Hills Middle, sixth through eighth grades and Special Education.
♦ Oakdale Heights, kindergarten through sixth grades and Special Education.
♦ Ophir Elementary, kindergarten through sixth grades and Special Education.
♦ Sierra del Oro, pre-school and Special Education.
♦ Stanford Avenue Elementary, kindergarten through sixth grades and Special Education.
♦ Wyandotte Avenue, kindergarten through sixth grades, Special Education, and Home School.

The eight schools had a combined enrollment of 1,773 students in the 2008-09 school year, which is just under half of the District’s total capacity of 3,999 students. OCESD enrollment has declined in over the past 10 years, which could be a result of declining employment in the community. OCESD experienced a total decrease of 628 students from 1998 to 2008.

46 Dunn, Andrea, Associate Superintendent, Oroville City Elementary School District, email communication with Lisa Katz, DC&E, November 11, 2009.
In the past, OCESD was unable to house all of the students wishing to attend Oroville City Elementary Schools without the use of re-locatable classrooms and the implementation of multi-track, year-round education. Previously, OCESD also needed to lease 24 State re-locatable classrooms to accommodate all of its students. Two years ago, OCESD closed Eastside Elementary School, a kindergarten through third grade school of approximately 100 students, due to declining student enrollment. OCESD also converted the District’s only remaining multi-track, year-round school, Ophir Elementary, back to a traditional schedule for the 2008-09 school year.

The total yearly budget for OCESD in 2008-2009 was $23 million, a number that declined to approximately $21 million for the 2009-10 school year. Approximately 80 percent of OCESD’s funding comes from State funding, 14 percent comes from the federal government, and 6 percent comes from local funding sources. Impact fees for schools levied on new developments in OCESD are $1.78 per square foot for residential, $0.28 for commercial, and $0.04 per square foot for rental/self storage development.

Despite declining enrollment, a number of facilities improvements and upgrades have recently occurred within the OCESD, including a new middle school, Ishi Hills Middle School, which opened its doors to students in February 2006. The District recently completed the construction of a new multi-purpose building at Ishi Hills in the summer 2008. No other major renovations are currently planned.

j. Oroville Union High School District
The Oroville Union High School District (OUHSD) offers secondary education to a 663-square-mile area that includes Oroville and surrounding unincorporated county areas. OUHSD accepts students from the Bangor Union, Feather Falls Union, Golden Feather Union, Oroville Elementary, Palermo, Pioneer, and Thermalito School Districts. OUHSD operates the following schools:
- Challenge Charter High School
- Las Plumas High School
♦ Oroville Adult Education Career and Technical Center  
♦ Oroville High School  
♦ OUHSD Community Day School  
♦ Prospect Alternative Center

These schools had a combined enrollment of 2,870 students in the 2008-09 school year. The three high schools had a collective enrollment of 2,702 students during the 2009-09 school year. During the same time, the other schools together had an enrollment of 168 students. OUHSD has experienced continued growth in enrollment, and projects that enrollment will increase slightly during the 2009-10 school year. A number of facilities improvements and upgrades have recently occurred, including the addition of a library, science building and industrial arts building at the Oroville High School, as well as a gym and an agricultural science and arts building at the Las Plumas High School. Modernization of existing buildings has recently occurred at all schools.

k. Palermo Union School District
The Palermo Union School District (PUSD) provides elementary education to approximately 67 square miles of unincorporated county territory to the south of Oroville. PUSD operates five schools: Helen Wilcox, which serves kindergarten through fourth grade and also has a day care center; Honcut Elementary, which serves kindergarten through fourth grade; Golden Hills, which serves fourth and fifth grades; Palermo School, which serves fifth through eighth grades; Palermo Community Day School, which serves kindergarten through sixth grade; and Palermo Community Day School, which serves seventh and eighth grades.

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47 Watts, Susan, Assistant Superintendent Chief Business Officer, Palermo Union School District, personal communication with Jessica Daniels, DC&E, August 4, 2009.

48 Watts, Susan, Assistant Superintendent Chief Business Officer, Palermo Union School District, personal communication with Jessica Daniels, DC&E, August 4, 2009.
PUSD had an enrollment of approximately 1,341 students for the 2008-09 school year, which is approaching the capacity of 1,440.\(^4\) Enrollment increased at a rate of 14 students over an eight-year period between 2001-02 and 2008-09. Enrollment is expected to decrease somewhat between the 2008-09 and 2009-10 school years. Following eighth grade, Palermo students attend school in the Oroville High School District.

PUSD recently constructed the Golden Hills School that serves fourth and fifth grades, which has relieved some of its overcrowding. The school features twelve classrooms, playing fields and a multi-purpose room, and was funded through State bonds. In addition, the Helen Wilcox and Palermo Schools recently underwent modernization. No new schools are planned.\(^5\)

The 2009-10 budget is approximately $11.3 million, of which approximately 65 percent comes from local revenues including property taxes, 13 percent come from federal sources, and 22 percent comes from State revenues. School impact fees are similar to those found in other school districts.

I. Paradise Unified School District
The Paradise Unified School District (PUSD) provides elementary and secondary education to a 220-square-mile area that includes Paradise and unincorporated areas north to Tehama and Plumas Counties. PUSD operates 15 schools and programs as follows:

- Paradise Pre-School;
- Children’s Community Charter School, which serves kindergarten through eighth grades;
- Cedarwood and Pines Elementary Schools, which serves kindergarten through fifth grade;

\(^4\)Shirley, Gail, Business Manager, Palermo Union School District, personal communication with Jessica Daniels, DC&E, July 28, 2009.

\(^5\)Shirley, Gail, Business Manager, Palermo Union School District, personal communication with Jessica Daniels, DC&E, July 28, 2009.
Paradise and Ponderosa Elementary Schools, which serves kindergarten through sixth grade;

♦ Mountain Ridge Middle and Paradise Charter Middle Schools, which serves sixth through eighth grades;

♦ Paradise Intermediate School, which serves seventh and eighth grades;

♦ HomeTech Charter School and Independent Learning Center, which serves kindergarten through twelfth grades;

♦ Paradise High School, which serves ninth through twelfth grades;

♦ Ridgeview High School, a continuation high school serving ninth through twelfth grades;

♦ Community Day School, which serves seventh through twelfth grades; and

♦ The College Connection program for twelfth grade.

PUSD enrollment in 2008-09 was approximately 4,548.\textsuperscript{51} Enrollment in PUSD schools has declined since 1998, particularly at the elementary grades, leaving PUSD substantially under its 5,800-student capacity. Enrollment is expected to decrease through the 2009-10 school year. PUSD is considering constructing a new gym at one of the high schools; otherwise there are no planned improvements or renovations to school facilities.

PUSD’s total annual budget is approximately $45 million, which comes from federal, State and local sources. New schools are funded by the State. The impact fee levied on new development for school facilities is $2.63 per square feet.

\textsuperscript{51} Stutznegg, Susan, Assistant Superintendent of Financial Services, Paradise Unified School District, personal communication with Jessica Daniels, DC&E, September 16, 2009.
m. Pioneer Union School District
The Pioneer Union School District (PUESD) provides elementary education to the residents of the communities of Berry Creek, Brush Creek, Mountain House, Lake Madrone, and surrounding areas to the north and east of Lake Oroville. PUSD is approximately 129 square miles in area and operates Berry Creek Elementary School and Bald Rock Community School.

PUESD enrollment in 2008-09 was 94 students.\(^{52}\) Enrollment in PUESD schools has declined over the last decade and is expected to decrease further in 2009-10, leaving PUESD significantly under its maximum capacity of 200 students. PUESD has no planned renovations or improvements to the schools or associated facilities at this time; however, the roof on the Berry Creek School was replaced in the summer of 2009.

PUESD’s total annual budget is approximately $1.4 million, which comes from federal and State sources. In addition, development impact fees are charged for construction within the District’s boundaries. The impact fee for construction is $1.84 per square foot, of which PUESD receives 58.2 percent.\(^ {53}\)

n. Thermalito Union Elementary School District
The Thermalito Union Elementary School District (TUSD) provides elementary education to the community of Thermalito and surrounding areas to the west of Oroville. Combined enrollment in TUSD schools was 1,416 in the 2008-09 school year, which was approximately 200 students under capacity.\(^ {54}\) This is approximately a 3 percent decrease from the 2005-06 school year.\(^ {55}\)

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\(^{52}\) Gaston, Susan, District Secretary, Pioneer Union School District, personal communication with Lisa Katz, DC&E, October 8, 2009.

\(^{53}\) Gaston, Susan, District Secretary, Pioneer Union School District, email communication with Lisa Katz, DC&E, November 10, 2009.

\(^{54}\) Diaz, Julian, Superintendent, Thermalito Union School District, personal communication with Jessica Daniels, DC&E, July 29, 2009.

\(^{55}\) California Department of Education website, accessed December 26, 2006.
Enrollment is expected to further decrease in the 2009-10 school year. TUSD has a large population of students who do not speak English as a first language and operates a number of special programs to serve the needs of these students. Following eighth grade, Thermalito students attend school in the Oroville Union High School District.

TUSD operates four conventional schools, two day schools and a home study program. Each conventional school is discussed below:

- Poplar Avenue School, located at Poplar Avenue and 20th Street, serves roughly 260 students in kindergarten through fifth grade.
- Sierra Avenue School, located at Sierra Avenue and 12th Street, serves approximately 300 students in kindergarten through fifth grade.
- Plumas Avenue School, located at Plumas Avenue and 5th Street, serves roughly 340 students in kindergarten through fifth grade.
- Nelson Avenue Middle School, located at 6th Street and Nelson Avenue serves approximately 503 students in sixth through eighth grade.

Although there have been declines in enrollment over the past two years, TUSD has accommodated increasing enrollment in the past through the addition of portable classroom facilities. There are discussions about adding a new school serving kindergarten through twelfth grades and a new high school if enrollment increases over the next decade. Otherwise, no major renovations are planned for existing schools in TUSD.

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56 Diaz, Julian, Superintendent, Thermalito Union School District, personal communication with Jessica Daniels, DC&E, July 29, 2009.
TUSD’s total annual budget is approximately $12.7 million, of which 54 percent comes from State sources, 45 percent is from categorical federal and State funds, and 1 percent is from local sources. New schools are funded through State funding, local bonds, and impact fees. Impact fees are approximately $3 per square foot.

2. Standards of Significance

General Plan 2030 would have a significant impact with regard to schools if it would:

♦ Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, or result in the need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

3. Impact Discussion

The following discussion provides an analysis of potential project and cumulative school impacts that could occur as a result of the projected 2030 buildout of General Plan 2030.

a. Project Impacts

i. Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, or result in the need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

Many of the school districts located in Butte County, including Bangor Union Elementary, Biggs Unified, Chico Unified, Oroville Union High, Palermo Union, and Paradise Unified School Districts, do not have adequate capacity for the number of new students that would be generated by implementation of General Plan 2030. The capacity for population growth allowed by General Plan 2030 for each district is as follows:
Bangor Union Elementary School District. General Plan 2030 would result in up to 100 new students within the BUESD, which, according to the District, cannot be accommodated by existing facilities.60

Biggs Unified School District. General Plan 2030 would result in up to 300 new students within the BUSD. Because school capacity information for BUSD is not available, this EIR assumes that these new students could not be accommodated by existing facilities in order to provide a conservative analysis of General Plan 2030.

Chico Unified School District. General Plan 2030 would result in up to 2,000 new students within the CUSD, which, according to the District, cannot be accommodated by existing facilities.61

Durham Unified School District. DUSD has the capacity for 923 additional students,62 and General Plan 2030 would result in up to 300 new students in the District. Therefore, the new students foreseeable under General Plan 2030 could be accommodated within existing facilities.

Feather Falls Union School District. FFUSD has the capacity for 378 additional students,63 and General Plan 2030 would result in up to 50 new students in the District. Therefore, the new students foreseeable under General Plan 2030 could be accommodated within existing facilities.

60 Arnold, Paul, Superintendent, Bangor Elementary Union School District, personal communication with Jessica Daniels, DC&E, July 28, 2009.


62 Cavanaugh, Connie, Business Manager, Durham Unified School District, personal communication with Jessica Daniels, DC&E, August 6, 2009.

♦ Golden Feather Union School District. GFUSD has the capacity for 215 additional students, and General Plan 2030 would result in up to 100 new students within the District. Therefore, the new students foreseeable under General Plan 2030 could be accommodated within existing facilities.

♦ Gridley Unified School District. GFUSD has the capacity for 257 additional students, and General Plan 2030 would result in up to 100 new students within the District. Therefore, the new students foreseeable under General Plan 2030 could be accommodated within existing facilities.

♦ Manzanita Elementary School District. MESD has the capacity for 15 additional students, and General Plan 2030 would result in up to 20 new students within the District. However, the District anticipates that MESD could accommodate the five additional students. Therefore, the new students foreseeable under General Plan 2030 could be accommodated within existing facilities.

♦ Oroville City Elementary School District. OCESD has the capacity for 2,226 additional students, and General Plan 2030 would result in up to 1,500 new students within the District. Therefore, the new students foreseeable under General Plan 2030 could be accommodated within existing facilities.

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64 Schmierer, Marge, Administrative Secretary, Golden Feather Union School District, personal communication with Jessica Daniels, DC&E, August 18, 2009.

65 Redfield, Clark, School Superintendent, Gridley Unified School District, personal communication with Jessica Daniels, DC&E, July 29, 2009.

66 Roberts, Brad, School Superintendent, Manzanita Elementary School District, personal communication with Jessica Daniels, DC&E, August 10, 2009.

67 Roberts, Brad, School Superintendent, Manzanita Elementary School District, personal communication with Jessica Daniels, DC&E, August 10, 2009.

68 Dunn, Andrea, Associate Superintendent, Oroville City Elementary School District, email communication with Lisa Katz, DC&E, November 11, 2009.
Oroville Union High School District. General Plan 2030 would result in up to 1,450 new students within the OUHSD, which, according to the District, cannot be accommodated by existing facilities.\textsuperscript{69}

Palermo Union School District. General Plan 2030 would result in up to 1,300 new students within the PUSD, which, according to the District, cannot be accommodated by existing facilities.\textsuperscript{70}

Paradise Unified School District. General Plan 2030 would result in up to 450 new students within the PUSD. Because school capacity information for PUSD is not available, this EIR assumes that these new students could not be accommodated by existing facilities in order to provide a conservative analysis of General Plan 2030.

Pioneer Union School District. PUSD has the capacity for 106 additional students,\textsuperscript{71} and General Plan 2030 would result in up to 50 new students within the District. Therefore, the new students foreseeable under General Plan 2030 could be accommodated within existing facilities.

Thermalito Union Elementary School District. TUESD has the capacity for 184 additional students,\textsuperscript{72} and General Plan 2030 would result in up to 150 new students within the District. Therefore, the new students foreseeable under General Plan 2030 could be accommodated within existing facilities.

As shown above, population growth foreseeable under General Plan 2030 would cause the need for new or expanded facilities, staff or infrastructure within the Bangor Union Elementary, Biggs Unified, Chico Unified, Oroville

\textsuperscript{69} Shirley, Gail, Business Manager, Palermo Union School District, personal communication with Jessica Daniels, DC&E, July 28, 2009.

\textsuperscript{70} Watts, Susan, Assistant Superintendent, Oroville Union High School District, personal communication with Jessica Daniels, DC&E, August 4, 2009.

\textsuperscript{71} Gaston, Susan, School Secretary, Pioneer Union School District, personal communication with Lisa Katz, DC&E, October 8, 2009.

\textsuperscript{72} Diaz, Julian, Superintendent, Thermalito Union Elementary School District, personal communication with Jessica Daniels, DC&E, July 29, 2009.
Union High, Palermo Union, and Paradise Unified School Districts. The location of new and expanded facilities to serve the additional students in Butte County is not known at this time. As a result, it cannot be determined what project-specific environmental impacts would occur from their construction and operation. These potential impacts would be identified during the facility site selection process.

California Government Code Sections 65995 (h) and 65996 (b) provide mitigation for impacts to school facilities. Such mitigation measures include fees, charges, or requirements levied against construction, pursuant to Section 17620 of the Education Code.

In addition, General Plan 2030 contains a number of policies that provide for adequate public school facilities to meet future demand. In particular, Public Facilities and Services Element Policy PUB-P4.7 requires that new development be approved only if the County and the applicable school district finds that existing or planned schools will be adequate to serve it. In addition, Policies PUB-P4.1 and PUB-P4.2 require that the review of development proposals be coordinated with school districts to determine and plan for capacity issues over time, and to decide on the location and design of new schools. Policy PUB-P4.3 requires that plans for future growth areas incorporate new school sites as appropriate. Policy PUB-P4.5 requires that the County provide information about projected population growth and development patterns to school districts to ensure adequate school facilities. Finally, Policy PUB-P4.6 requires that school districts have the opportunity to review proposed residential developments and make recommendations about the need for additional facilities based on school-child projections, existing school capacity, access, and traffic issues.

As a result of the proposed policies, and consistent with State law on the determination of impacts to school facilities, school impacts would be less than significant.
b. Cumulative Impacts
Future regional growth would result in increased demand for additional school facilities within the region, including for new school facilities outside of the county limits. For some Butte County school districts, population growth within the incorporated municipalities would further contribute to the need for new or expanded facilities. However, as with the project-level analysis in Section C.3.a, it is unknown exactly where these new school facilities and expansions would occur to support the cumulative increase in population. As specific school expansion or improvement projects are identified, additional project-specific, environmental analysis would be completed. As a result, cumulative impacts to schools would be considered less than significant.

4. Impacts and Mitigation Measures
Since there are no significant impacts related to schools as a result of General Plan 2030, no mitigation measures are required.

D. Library

This section describes current conditions and potential impacts of the proposed General Plan 2030 with regard to library services in Butte County.

1. Existing Conditions
The Butte County Library has served as an important cultural and educational resource for the people of Butte County for nearly a century. The Butte County Library provides library services to all county residents through a consolidated operation from its main library in Oroville and branches in Biggs, Chico, Durham, Gridley and Paradise. Libraries are in the following locations:

- **Oroville Branch Library**, 1820 Mitchell Avenue, Oroville
- **Biggs Branch Library**, 464A B Street, Biggs
- **Chico Branch Library**, 1108 Sherman Avenue, Chico
- **Durham Branch Library**, 2545 Durham-Dayton Highway
- **Gridley Branch Library**, 299 Spruce Street, Gridley
- **Paradise Branch Library**, 5922 Clark Road, Paradise
The Butte County Library houses a collection of over 330,000 items, including books, videos, DVDs, music CDs, and books on tape and CD. The Library is a member of the 13-county North State Cooperative Library System, a network of public and academic libraries that pools resources for interlibrary loan service, access to specialized reference services, and cooperative planning for regional service. Library facilities currently lack sufficient staff and technology to operate at full capacity. However, the library branches continue to provide additional programs such as children’s story time, book discussions for adults, and film screenings, which are coordinated and led by library staff and volunteers.73

The Oroville and Chico Branches recently underwent minor renovations in the form of new carpeting in their Community Meeting Rooms. However, there are no additional renovations planned until the 2015-2016 fiscal year, when the Capital Improvement Plan projects that an expansion and renovation of library building systems and components will be required. Library revenue includes County General Funds, fines and fees, donations, State grants, and contracted programs. In fiscal year 2008-2009, the Library provided library services to over 750,000 visitors and checked out over 910,000 items.74 Butte County Library currently does not follow any service standards; however, the Library Advisory Board is currently in the process of creating a new strategic plan for guiding the future direction of library services in Butte County.75

2. Standards of Significance
General Plan 2030 would have a significant impact with regard to library services if it would:

73 Holmes, Deborah, Senior Administrative Assistant, Butte County Library, personal communication with Jessica Daniels, DC&E, August 5, 2009.
74 Holmes, Deborah, Senior Administrative Assistant, Butte County Library, personal communication with Jessica Daniels, DC&E, August 18, 2009.
75 Holmes, Deborah, Senior Administrative Assistant, Butte County Library, personal communication with Jessica Daniels, DC&E, September 30, 2009.
♦ Result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, or result in the need for new or physically altered library facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

3. Impact Discussion
The following discussion provides an analysis of potential project and cumulative library service impacts that could occur as a result of implementation of the projected 2030 buildout of General Plan 2030.

a. Project Impacts
   i. Result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, or result in the need for new or physically altered library facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

The proposed General Plan 2030 would result in an increase in population and, thus, library usage in Butte County. New or expanded library facilities would likely be needed to serve new development allowed by General Plan 2030. However, the location of new and expanded library services is not known at this time. As a result, it cannot be determined what project-specific environmental impacts would occur from their construction and operation. These potential impacts would be identified during the facility site selection process. In addition, General Plan 2030 requires that County facilities be designed, constructed, and operated to be environmentally sustainable and beneficial to the community and the region through Policy PUB-P1.2.

General Plan 2030 also includes policies and actions that seek to ensure that adequate services and facilities are funded to meet increasing demand. Public Facilities and Services Element PUB-P5.1 directs that the County’s library operations funding be maintained or expanded. Action PUB-A5.1 directs the County to identify opportunities to partner with municipalities, other agencies, and library support organizations in providing library facilities and services, and Action PUB-A5.2 directs the County to pursue joint-use agree-
ments with schools, universities, colleges, social service agencies, cultural institutions, and other organizations in communities to provide services where County library facilities are infeasible.

As a result of the proposed policies, library service impacts would be less than significant.

b. Cumulative Impacts
Future regional growth would result in increased demand for library facilities throughout the region. As a result, neighboring jurisdictions would also most likely need to expand library facilities to meet the increased demand. However, as with the project-level analysis in Section D.3.a, it is unknown exactly where these new library facilities and expansions would occur to support the cumulative increase in population. As specific library expansion or improvement projects are identified, additional project-specific, environmental analysis would be completed. As a result, a less-than-significant cumulative impact associated with libraries would occur.

4. Impacts and Mitigation Measures
Since there are no significant impacts related to library services as a result of General Plan 2030, no mitigation measures are required.

E. Parks and Recreation

This section describes current conditions and potential impacts of the proposed General Plan 2030 with regard to parks and recreation in Butte County.

1. Regulatory Framework
Since the passage of the 1975 Quimby Act (California Government Code Section 66477), cities and counties have been authorized to pass ordinances requiring that developers set aside land, donate conservation easements, or pay fees for park improvements. Revenues generated through the Quimby Act
cannot be used for the operation and maintenance of park facilities. A 1982 amendment (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. Jurisdictions with a high ratio of park space to inhabitants can set a standard of up to 5 acres per 1,000 persons for new development. Jurisdictions with a lower ratio can only require the provision of up to 3 acres of park space per 1,000 residents. The calculation of a jurisdiction’s park space to population ratio is based on a comparison of the population count of the last US Census to the amount of publicly owned parkland. In Butte County, park and recreation districts use a level of service ratio of 5 acres of usable park land per 1,000 residents.

2. Existing Conditions

A wide range of recreational facilities and recreational programs are found in Butte County, offering numerous recreational opportunities to local residents and visitors. Most public recreational facilities and parks in the unincorporated county are owned and/or managed by one of five large independent special districts, or by a various local, State and federal agencies, sometimes in joint arrangements. Others, including some facilities located within the municipalities, are owned and managed by the municipalities themselves. This section describes all of these various types of recreational facilities in Butte County.

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77 Chico Area Recreation and Park District, November 2008, Parks and Recreation Master Plan, page 3-17; Paradise Recreation and Park District, December 2001, Parks and Recreation Master Plan, page 13; and Visconti, Steve, Director, Chico Area Recreation and Park District, personal communication with Dan Breedon, Principal Planner, Butte County Department of Development Services, March 3, 2010.
a. Federal and State Parks, Campgrounds and Reserves
Various federal and State agencies manage lands and facilities that offer important recreation opportunities within the county, as shown in Figure 4.12-2.

i. US Forest Service
Butte County contains approximately 133,687 acres of forest and public domain range lands administered by the US Forest Service. Two National Forests extend into portions of Butte County: Plumas National Forest and Lassen National Forest. In addition, a 209-acre research center just outside of Chico is administered by the Mendocino National Forest. National forests are managed for multiple uses and emphasize dispersed recreation opportunities.

ii. Bureau of Land Management
The US Bureau of Land Management (BLM) owns 18,600 acres in Butte County, consisting primarily of scattered foothill lands. The majority of BLM land falls within the “Forks of Butte Creek” subsection of the Ishi Management Area. BLM has designated its holdings on the Butte Creek canyon from above the Forks of Butte Creek to Helltown as an Outstanding Natural Area. In the upper Butte Creek canyon area, the Forks of Butte Creek Recreation Area is the only public access site for recreation. This area provides hiking, fishing, tubing, kayaking, picnicking, and camping, among other activities. In addition to these facilities, BLM manages about 120 acres near Magalia that include a series of nature trails.

iii. State Parks and Recreation Areas
Existing State Parks and Recreation Areas include the Lake Oroville State Recreation Area, which encompasses 47,000 acres, and twelve separate recreation areas. Two wildlife management areas are operated by the State, including the Oroville State Wildlife Area, near Lake Oroville, and the Grey Lodge State Waterfowl Management Area, located southwest of Gridley. The Grey Lodge is one of the most developed waterfowl marshlands in the nation, created primarily as winter habitat area and to provide feeding and resting areas for migratory waterfowl coming into the valley.
BUTTE COUNTY GENERAL PLAN 2030
DRAFT EIR
PUBLIC SERVICES AND RECREATION

Source: Butte County GIS, 2009.

FIGURE 4.12-2
FEDERAL AND STATE RECREATION LANDS
The Bidwell River Park, west of Chico, is a 180-acre park with amenities including boat launches and picnic tables. This park is popular with recreationists, serving 500 visitors daily.

b. Wild and Scenic Rivers
A 77.6-mile portion of the Middle Fork of the Feather River has federal Wild and Scenic River status. This river is located within the boundaries of the Plumas National Forest. The wild and scenic designation covers 24,000 acres, generally within a ¼- to ½-mile band along the river, and extends from Beckworth in the Sierra Valley (Plumas County) to Lake Oroville. Approximately 10.5 miles of this wild and scenic river flow through Butte County. The river represents a unique free-flowing stream that is the only charter member of the National Wild and Scenic River System in California.

c. Special Districts
Five large special independent districts maintain many of the parks and recreational facilities in Butte County. These districts, which encompass most of the County’s land area, operate as independent districts, meaning that each district is governed by a board of directors elected by the voters in that district. The districts in Butte County are also non-enterprise districts, meaning that they depend mainly on property taxes for operating revenue, rather than user fees. Butte County’s Special Districts, which are shown in Figure 4.12-3, are as follows:

- Chico Area Recreation and Park District (CARD)
- Feather River Recreation and Park District (FRRPD)
- Paradise Recreation and Park District (PRPD)
- Durham Recreation and Park District (DRPD)
- Richvale Recreation and Park District (RRPD)

d. Local Agency Parks and Recreation Facilities
This section describes the park and recreation facilities that are provided by local agencies, including the special districts, municipalities and other agencies.
Facilities encompassed within the 163,200-acre geographic area of CARD, including those within the City of Chico and surrounding area, are owned and operated variously by the CARD, the City of Chico, and other local entities, including California State University, Chico, and the Chico Unified School District. One of the most notable recreational amenities in this area is the 3,600-acre Bidwell Park, owned by the City of Chico. Bidwell park is the largest city park in the entire country. Other large parks include the CARD Community Park and the City-owned Hooker Oak Recreation Area. Many other smaller parks are owned and operated by the City and by CARD. Also, the Chico Unified School District operates a number of ballfields and athletic fields. CARD manages approximately 147 acres as parkland, of which 131 acres are developed parkland.

CARD maintains a Parks Master Plan that is currently being updated. The Master Plan contains goals for locating parks within specified service areas. In the case of community parks, the maximum service area is 1 mile; for neighborhood parks, it is 0.5 miles. In addition, the existing and new Master Plans call for specific ratios of park space to CARD inhabitants, as shown in Table 4.12-1. CARD is close to meeting its existing goal for community parks, which is 1.6 acres per 1,000 inhabitants, but once the Master Plan is updated, the ratio will increase to 2.5 acres per 1,000 inhabitants, and CARD will fall short of its goal. As shown in Table 4.12-1, there is an existing shortage of neighborhood parks, and this condition will continue under the new goal that will be established under the updated Master Plan. Greenways are in adequate supply according to the current Master Plan, and the City of Chico will take responsibility for them under the updated Master Plan.

Funding for parks in CARD comes from property taxes, City Redevelopment Area funds, and grants. Some Landscape and Lighting Assessment

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Visconti, Steve, General Manager, Chico Area Recreation and Park District, personal communication with Jessica Daniels, DC&E, July 28, 2009.
### Table 4.12-1  CARD MASTER PLAN RATIO OF PARK SPACE TO INHABITANTS

<table>
<thead>
<tr>
<th></th>
<th>Previous Master Plan Goal</th>
<th>Current Achieved</th>
<th>Updated Master Plan Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Parks</td>
<td>1.6 acres/1,000 inhabitants</td>
<td>1.56 acres/1,000 inhabitants</td>
<td>2.5 acres/1,000 inhabitants</td>
</tr>
<tr>
<td>Neighborhood Parks</td>
<td>0.9 acres/1,000 inhabitants</td>
<td>0.37 acres/1,000 inhabitants</td>
<td>1.5 acres/1,000 inhabitants</td>
</tr>
<tr>
<td>Greenways</td>
<td>2.5 acres/1,000 inhabitants</td>
<td>2.67 acres/1,000 inhabitants</td>
<td>N/A*</td>
</tr>
</tbody>
</table>

* The Chico Area Recreation District will remove greenways from its updated Master Plan. The City of Chico will be responsible for these facilities.

Source: Chico Area Recreation District, 2009.

Districts (LLAD) are used to raise additional funds. However, the CARD is currently close to maximum staff afforded by its current revenue stream.\(^79\)

Approximately $2,400 per new residential home is collected as developer impact fees to acquire and develop new parkland for CARD. CARD also shares facilities with the Chico Unified School District, although there is no formal agreement.\(^80\)

### ii. Oroville Area

Recreation facilities within the FRRPD are owned and operated by various local agencies including the FRRPD, the City of Oroville, and several school districts located within this area. Significant recreation facilities in the FRRPD are: Riverbend Park, a District-owned facility along the Feather River in Oroville; Mitchell Park, also in Oroville; and the Forbestown Park and Community Center that serves the Forbestown area. Numerous other

\(^79\) Visconti, Steve, General Manager, Chico Area Recreation and Park District, personal communication with Jessica Daniels, DC&E, July 28, 2009.

\(^80\) Visconti, Steve, General Manager, Chico Area Recreation and Park District, personal communication with Jessica Daniels, DC&E, July 28 and September 24, 2009.
smaller parks that offer a variety of active and passive recreational opportunities are located throughout the area, serving neighborhoods in and around the City of Oroville and other population centers. The FRRPD manages approximately 264 acres as parkland, of which 137 acres are developed parkland.

### iii. Paradise Area

The recreation facilities within the 108,160-acre area of the PRPD, including those within the Town of Paradise and its surrounding area, are owned and operated variously by the PRPD, the Town of Paradise, and other local entities, including the Paradise and Golden Feather School Districts. Included among these facilities are the 320-acre Coutolenc Park in Magalia and the Paradise Memorial Trailway, a 4-mile paved trail along the old railroad line in Paradise. Facilities owned by the Paradise Irrigation District and the Bureau of Land Management serve a secondary role as recreational resources for PRPD. The PRPD manages approximately 434 acres as parkland, of which 76 acres are developed parkland.

The PRPD has plans for new or expanded recreational facilities, including a new 20-acre park in the Magalia area, a new 8-acre park in the Concow area, and the Terry Ashe Recreation Center Renovation Project, which will increase the size of the Center by 10 percent. Construction of the renovation project is underway and the expansion is 20 percent complete.81

The PRPD’s current ratio of parkland to inhabitants is 1.5 acres per 1,000 people, and its goal is 5 acres per 1,000 people. The PRPD has not established a standard for the average or maximum distance between residential property and a park or recreational facility, but the PRPD has six planning areas that are based on such factors, including geography, location to population centers, and distance to existing parks.82

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81 Trinca, Mike, District Manager, Paradise Recreation and Park District, personal communication with Lisa Katz, DC&E, July 9, 2009.

Funding for new parks comes from a combination of grants, private donations, impact fees, and other public agencies. Grants come from both federal and State sources. The developer impact fee for parks and recreation is $0.50 per square foot.

iv. Durham Area
Facilities within the 140,800-acre area of the DRPD, including those within the community of Durham and its surrounding area, are owned and operated by the DRPD and other local entities, such as the Butte-Glenn Community College District and the Durham Unified School District. The most prominent amenity in the Durham area is Butte Community College, which provides 234 acres of recreational land that includes sport courts and athletic fields. The DRPD manages approximately 34 acres as parkland, all of which are developed parkland.

The DRPD’s stated goal of park space to inhabitants is 5 acres per 1,000 residents. The DRPD currently has a ratio of 1.5 acres per 1,000 residents. At present, the DRPD has not established a standard for the average or maximum distance between residential property and a park or recreational facility. Currently, 35 percent of residential properties are located within 0.5-mile of a DRPD park, while 55 percent are located within 1 mile.

A new Master Plan is currently being developed for the DPRD, within which new goals and standards will be established for the DPRD. The DRPD’s programs, facilities and staff are fully funded through impact fees, local property taxes and user fees. There are plans for a multi-use facility that would provide gym space for the DRPD’s programs and allow for additional programs in the future.

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84Butte County LAFCO, March 2005, Municipal Service Review, Recreation and Parks, prepared by Cotton Bridges Associates.
v. Richvale Area
The RRPD encompasses approximately 6,400 acres and includes the unincorporated community of Richvale, an area which is primarily rural in nature. There are no recreational facilities that are owned by the RRPD, County, or other local entities. Rather, RRPD has a joint use agreement with the Biggs Unified School District through which 2 acres of parkland, as well as facilities including a picnic area, tennis courts, basketball courts, softball field, and recreation room, are shared with the Richvale Elementary School. Residents in the RRPD wishing to participate in recreational leagues travel to Biggs or Durham. However, as part of an effort to offer more active recreational amenities in the area, the RRPD is developing a walking trail as part of an existing park located within central Richvale.

Funding for RRPD comes strictly from grants, which limits its ability to hire and maintain paid staff. However, a non-profit hunting club regularly contributes funds, supplementing the RRPD’s budget annually. Facilities will need to be expanded to address existing and future needs of the population, but RRPD faces difficulties in obtaining grant funding due to the lack of employees.

RRPD does not have a standard for the ratio of the amount of parkland to the number of inhabitants, but works with the school district to determine the needs for parks and recreational facilities. The 2 acres of parkland available in RRPD roughly translates to 3 acres per 1,000 inhabitants. Approximately 84 percent of residents in the RRPD live within 1 mile of the parkland.

vi. Gridley and Biggs Area
No special recreation and park district serves the Gridley or Biggs areas. However, two Community Service Areas operate swimming pools that serve...
these communities. The pools are owned by Butte County. The Fairgrounds operate the Olympic-size swimming pool in Gridley, and the Biggs Unified School District operates the community swimming pool in Biggs.

e.  Trails
A number of developed recreational trails are found in Butte County, many of which are located within the National Forest lands in the foothills of eastern Butte County. These include two National trails, as follows:

- **Pacific Crest National Scenic Trail.** Approximately 6 miles of the federally designated Pacific Crest National Scenic Trail is located in Lassen National Forest on the eastern Butte-Plumas County border. The Pacific Crest National Scenic Trail receives high use, as this trail provides continuous recreational access from Canada to Mexico.

- **The Feather Falls National Recreation Trail.** This 3.5-mile trail is located within Plumas National Forest, and provides hiking access to the Feather Falls National Scenic Area and to the Feather Falls, noted as the sixth highest waterfall in the continental United States and third highest waterfall in California. The Feather Falls trail and scenic area is a very popular spring and summer attraction.

In addition, a 17.5-mile loop trail at Loafer Creek and portions of the Freeman Trail are accessible for equestrian and bicycle riding at Lake Oroville State Recreation Area. The California Hiking and Equestrian Trail, which is maintained by the California Department of Parks and Recreation, provides pedestrian and equestrian recreational opportunities in the Oroville area. Within the Chico Recreation and Park District, a system of trails serves the Chico urban area, and trails are also found within the Lake Oroville State Recreation Area and other City, State, and District-managed parks and recreation lands.

3. **Standards of Significance**
General Plan 2030 would have a significant impact with regard to parks and recreation if it would:
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; or

Result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, or result in the need for new or physically altered park facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives.

4. Impact Discussion

The following discussion provides an analysis of potential project and cumulative park and recreation impacts that could occur as a result of the projected 2030 buildout of General Plan 2030.

a. Project Impacts
   i. 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.

Differing standards are used to evaluate what amount of parkland is “adequate” to serve a particular population. As indicated in Section E.1, the Quimby Act allows cities and counties to require land or in-lieu fees for a minimum of 3 acres per 1,000 residents. However, the park and recreation districts within Butte County use a level of service ratio of 5 acres of usable parkland per 1,000 people. There are over 1 million acres of open space and parkland in the county and approximately 618,000 acres of open space and parkland in unincorporated Butte County serving an existing population of 83,900 residents. On average, park and recreation facilities in Butte County exceed the Quimby Act minimum standard of 3 acres per 1,000 residents. In part, this is accomplished through joint-use agreements with school districts to obtain access to sports fields, basketball, tennis, gymnasiums, and other recreational facilities. However, there are only approximately 70 acres of developed parkland within unincorporated Butte County that are considered
“usable” parks by the County’s parks and recreation districts.\footnote{This is based on data provided to Dan Breedon, Principal Planner, Butte County Department of Development Services, by Steve Visconti, Director, Chico Area Recreation and Parks District, Mike Trinca, Director, Paradise Recreation and Parks District, and Jim Brinson, Director, Durham Recreation and Park District on October 30, 2009.} In addition, Butte College owns and operates approximately 230 acres of developed parkland, for a total of approximately 300 acres of developed parkland in unincorporated Butte County. This results in a level of service ratio of 3.6 acres of developed parkland per 1,000 residents, which does not meet the local park and recreation district standard.

New residents generated by development under General Plan 2030 would increase the demand for recreational opportunities and facilities; this demand would be distributed throughout the county. Because development would be distributed throughout the county and there are substantial existing open space amenities available in Butte County, it is unlikely that any single recreational facility would experience significant physical deterioration from an increase in demand. In addition, as described below, General Plan 2030 includes a number of policies that promote the development of new parks; these parks would serve new residents and reduce impacts to existing facilities.

Policies in General Plan 2030 ensure that park and recreational facilities are funded so that they can be adequately maintained. Policy PUB-P6.3 requires that new residential development be assessed for Quimby Act fees to support park development. Action PUB-A6.1 directs the County to use Community Facilities Districts, Mello-Roos, and/or landscaping and lighting districts to provide funding for on-going maintenance and operation of parks and recreation facilities in medium density (six dwelling units per acre) and higher density residential developments. Action PUB-A7.1 directs the County to identify strategies to assist special districts with funding, planning, and support for recreation and park facility development, and to establish a plan for the distribution of federal and State funds for recreation and park programs and facilities.
Other General Plan 2030 policies ensure that new parkland and recreational facilities are developed to accommodate the growing population, which would help to avoid deterioration of existing facilities. Policy PUB-P6.1 directs the County to coordinate the review of development proposals with other agencies in order to designate sites for new parks and recreation facilities. Policy PUB-P6.4 allows density increases when small parks are incorporated into development projects. Policy PUB-P6.5 encourages permanently-protected and maintained open space in new development using mechanisms such as conservation easements and development agreements. Policy PUB-P7.1 directs the County to cooperate with the municipalities, park and recreation districts, and school districts to plan and develop additional regional and community parks, support and coordinate park master plans, coordinate financing for recreation and park facilities, and plan for the distribution of federal and State funds for recreation and park programs and facilities.

New residents resulting from the proposed General Plan 2030 would increase the use of existing facilities throughout the county, but this increase in users would not cause significant physical deterioration to any single recreational facility because General Plan 2030 promotes the development of new park facilities that would serve new residents. In addition, General Plan 2030 includes a number of policies that address funding for park facilities. Therefore, the proposed project would result in a less-than-significant impact.

ii. Result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, or result in the need for new or physically altered park facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives.

As discussed in Section E.4.a.i, General Plan 2030 would result in development that would increase the demand for parks and recreational facilities. This would likely result in the need for new or expanded park facilities. However, the locations of such facilities are not known at this time. As a result, it cannot be determined what project-specific environmental impacts would occur from their construction and operation. These potential impacts would be identified during the facility site selection process.
In addition, as discussed in Section E.4.a.i, General Plan 2030 includes policies and actions that would help ensure that parkland goals are met. Policies PUB-P6.1, PUB-P6.4, PUB-P6.5, and PUB-P7.1 ensure that new parkland and recreational facilities are developed to accommodate the growing population. Additionally, Policy PUB-P6.3 and Actions PUB-A6.1 and PUB-A7.1 ensure that park and recreational facilities are funded.

As a result of the proposed policies, parks and recreation facility impacts would be less than significant.

b. Cumulative Impacts
As discussed in Section E.4.a, on average, park and recreation facilities in Butte County exceed the Quimby Act standard of 3 acres per 1,000 residents but do not meet the level of service standard adopted by local park and recreation districts in Butte County. However, as discussed in Section E.4.a, General Plan 2030 includes a number of policies that ensure park and recreation facilities are funded and that new parks and recreational facilities are developed to accommodate the growing population.

Future regional growth would result in increased demand for park and recreational facilities throughout the region. As a result, new parks and recreational facilities would need to be constructed, or existing facilities may need to be expanded. As with the project-level analysis in Section E.4.a, the location and size of additional facilities would be determined as part of future development activity. As specific park and recreation facility expansions or improvement projects are identified, additional project-specific, environmental analysis would be completed. As a result, a less-than-significant cumulative impact associated with parks and recreation would occur.

5. Impacts and Mitigation Measures
Since there are no significant impacts related to parks and recreation as a result of General Plan 2030, no mitigation measures are required.
F. Maximum Theoretical Buildout

The maximum theoretical buildout that could result under General Plan 2030 would include significantly more development than the projected 2030 buildout analyzed in the impact discussion sections in terms of both the amount and the extent of development. Therefore, the potential for impacts to public services and recreation would increase. However, as discussed in Chapter 3, it is unlikely that maximum theoretical buildout would ever occur under General Plan 2030, and an analysis of maximum theoretical buildout is not required by CEQA.
This chapter summarizes the potential transportation impacts associated with implementation of General Plan 2030 and the Airport Land Use Compatibility Plan (ALUCP) override. This section is based on both a quantitative and spatial analysis, and considers the operations of key roadway segments in the county under three scenarios: Existing Conditions, Year 2030 Plus General Plan Projected Buildout Conditions, and Year 2030 No Project Conditions.

The Existing Conditions scenario reflects the state of the county’s transportation network as it was in 2006, when this General Plan process started. The Year 2030 Plus General Plan Projected Buildout Conditions scenario analyzes how the county’s transportation network would operate if the proposed General Plan 2030 were implemented. The final scenario, Year 2030 No Project Conditions, provides insight as to how the county’s transportation network might operate if the proposed General Plan 2030 were not adopted and instead the previously adopted General Plan continued to guide the county’s development patterns and transportation investments. The Year 2030 No Project Conditions transportation results are not used to evaluate impacts associated with implementation of General Plan 2030; these results are reported for informational and comparative purposes only.

In addition to roadway operations, this analysis also considers how adoption of General Plan 2030 would impact traffic hazards, emergency access, parking supply, alternative transportation modes, and air traffic. Impacts are identified according to the County’s and other relevant jurisdictions’ impact threshold criteria. Mitigation measures are recommended to reduce the significance of identified impacts.

A. Regulatory Framework

This section summarizes key existing State, regional, County, and municipal statutes, regulations, and policies pertaining to transportation in Butte County. These regulations provide guidance related to the following: roadway operations; the design of roadway facilities; provision of emergency ac-
cess; parking supply; alternative transportation, including transit and nonmotorized modes; and air traffic considerations.

Most of the State, County, and municipal policies relating to roadway operations described in this section are based on level of service goals. Level of service is a qualitative measure used to describe the operating condition of transportation facilities. Level of service ranges from level of service (LOS) A to F, which represent driving conditions from least congested to most congested, respectively. In general, LOS A represents free-flow conditions, and LOS F represents severe delay caused by stop-and-go conditions. Table 4.13-1 summarizes the transportation conditions that exist under each level of service value.

LOS scores are based on quantitative measures of speed and travel time, freedom to maneuver, traffic interruption, and comfort and convenience. For this analysis, roadway LOS was determined by comparing anticipated peak hour traffic volumes with recognized LOS thresholds. LOS was evaluated on key roadway segments throughout the county during the PM peak hour. Table 4.13-2 summarizes the County’s PM peak hour LOS criteria for each roadway facility type and classification in Butte County. These criteria have been used in other long-range transportation planning applications, including the Environmental Impact Report analysis for the 2008-2035 Regional Transportation Plan. The LOS criteria provide a basis for assessing the operational effectiveness of roadway facilities that is consistent with the methodologies included in the Highway Capacity Manual (2000). PM peak hour operations are analyzed because this typically represents the busiest time of day on most roadways throughout Butte County.

1. State Transportation Concept Reports
The California Department of Transportation’s (Caltrans) Transportation Concept Reports (TCRs) identify long-range improvements for specific State highway corridors. These reports establish the “concept” or desired level of service for specific corridor segments and identify long-range improvements necessary to bring the existing facility up to the design concept expected to
### Table 4.13-1  **Peak Hour Level of Service (LOS) Descriptions**

<table>
<thead>
<tr>
<th>LOS</th>
<th>Traffic Flow Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Free flow. Individual users are virtually unaffected by others in the traffic stream. Control delay at signalized intersections is minimal.</td>
</tr>
<tr>
<td>B</td>
<td>Stable flow, but the presence of other users in the traffic stream begins to be noticeable. The ability to maneuver within the traffic stream is only slightly restricted, and control delays at signalized intersections are not significant.</td>
</tr>
<tr>
<td>C</td>
<td>Stable flow, but the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.</td>
</tr>
<tr>
<td>D</td>
<td>High-density, but stable flow.</td>
</tr>
<tr>
<td>E</td>
<td>Operating conditions at or near capacity level.</td>
</tr>
<tr>
<td>F</td>
<td>Forced or breakdown flow.</td>
</tr>
</tbody>
</table>


adequately serve 20-year traffic forecasts. In addition, TCRs identify the ultimate design concept for the facility for conditions beyond the immediate 20-year design period.

Caltrans has published TCRs for all of the State facilities in Butte County: State Route 32, State Route 70, State Route 99, State Route 149, State Route 162, and State Route 191. The concept level of service for each of these facilities in the TCRs is as follows:

- **State Route 32**: The *State Route 32 Transportation Concept Report* envisions this State facility varying between a two-lane conventional highway, to an urban two-way couplet, to a four-lane expressway with partial access control. It has a 20-year concept of LOS E for all segments between the Glenn County Line and Forest Avenue (east of State Route 99). From Forest Avenue to the Tehama County Line, State Route 32 has a concept of LOS D.
### Table 4.13-2  Butte County PM Peak Hour Level of Service Criteria

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor 2-Lane Highway</td>
<td>0-90</td>
<td>91-200</td>
<td>201-680</td>
<td>681-1,410</td>
<td>1,411-1,740</td>
<td>&gt;1,740</td>
</tr>
<tr>
<td>Major 2-Lane Highway/Expressway</td>
<td>0-120</td>
<td>121-290</td>
<td>291-790</td>
<td>791-1,600</td>
<td>1,601-2,050</td>
<td>&gt;2,050</td>
</tr>
<tr>
<td>4-Lane, Multi-Lane Highway/Expressway</td>
<td>0-1,070</td>
<td>1,071-1,760</td>
<td>1,761-2,530</td>
<td>2,531-3,280</td>
<td>3,281-3,650</td>
<td>&gt;3,650</td>
</tr>
<tr>
<td>2-Lane Arterial</td>
<td>–</td>
<td>–</td>
<td>0-970</td>
<td>971-1,760</td>
<td>1,761-1,870</td>
<td>&gt;1,870</td>
</tr>
<tr>
<td>4-Lane Arterial, Undivided</td>
<td>–</td>
<td>–</td>
<td>0-1,750</td>
<td>1,751-2,740</td>
<td>2,741-2,890</td>
<td>&gt;2,890</td>
</tr>
<tr>
<td>4-Lane Arterial, Divided</td>
<td>–</td>
<td>–</td>
<td>0-1,920</td>
<td>1,921-3,540</td>
<td>3,541-3,740</td>
<td>&gt;3,740</td>
</tr>
<tr>
<td>6-Lane Arterial, Divided</td>
<td>–</td>
<td>–</td>
<td>0-2,710</td>
<td>2,711-5,320</td>
<td>5,321-5,600</td>
<td>&gt;5,600</td>
</tr>
<tr>
<td>3-Lane Arterial, One-Way Roadway</td>
<td>–</td>
<td>–</td>
<td>0-1,310</td>
<td>1,311-2,060</td>
<td>2,061-2,170</td>
<td>&gt;2,170</td>
</tr>
<tr>
<td>2-Lane Freeway</td>
<td>0-1,110</td>
<td>1,111-2,010</td>
<td>2,011-2,880</td>
<td>2,881-3,570</td>
<td>3,571-4,010</td>
<td>&gt;4,010</td>
</tr>
<tr>
<td>2-Lane Freeway + Auxiliary Lane</td>
<td>0-1,410</td>
<td>1,411-2,550</td>
<td>2,551-3,640</td>
<td>3,641-4,490</td>
<td>4,491-5,035</td>
<td>&gt;5,035</td>
</tr>
<tr>
<td>3-Lane Freeway</td>
<td>0-1,700</td>
<td>1,701-3,080</td>
<td>3,081-4,400</td>
<td>4,401-5,410</td>
<td>5,411-6,060</td>
<td>&gt;6,060</td>
</tr>
<tr>
<td>3-Lane Freeway + Auxiliary Lane</td>
<td>0-2,010</td>
<td>2,011-3,640</td>
<td>3,641-5,180</td>
<td>5,181-6,350</td>
<td>6,351-7,100</td>
<td>&gt;7,100</td>
</tr>
<tr>
<td>4-Lane Freeway</td>
<td>0-2,320</td>
<td>2,321-4,200</td>
<td>4,201-5,950</td>
<td>5,951-7,280</td>
<td>7,281-8,140</td>
<td>&gt;8,140</td>
</tr>
<tr>
<td>Major 2-Lane Collector</td>
<td>–</td>
<td>–</td>
<td>0-550</td>
<td>551-1,180</td>
<td>1,181-1,520</td>
<td>&gt;1,520</td>
</tr>
</tbody>
</table>

♦ State Route 70: According to the State Route 70 Transportation Concept Report, the 20-year concept for the Highway 70 corridor is a two-lane highway from Yuba County to 0.3 miles south of State Route 162, with passing and center turn lanes provided along this segment. At one time this portion of State Route 70 was planned as a freeway. However, it was determined that the highway can be enhanced by strategically providing passing opportunities. From 0.3 miles south of State Route 162 to State Route 149, State Route 70 is a four-lane freeway. North of State Route 149, State Route 70 downgrades from a four-lane expressway to a two-lane conventional highway. It has a 20-year concept LOS E south of State Route 149 and concept LOS D for all segments north of State Route 149.

♦ State Route 99: The Draft State Route 99 Transportation Concept Report envisions State Route 99 as varying between a two-lane conventional highway with passing lanes (south of Liberty Road) to a four-lane facility in sections and eventually a six-lane freeway through the Chico urban area between Skyway and approximately Garner Lane. State Route 99 has a 20-year concept LOS E for all sections in Butte County.

♦ State Route 149: The State Route 149 Transportation Concept Report envisions State Route 149 as a divided four-lane expressway facility with a 20-year concept LOS D.

♦ State Route 162: According to the State Route 162 Transportation Concept Report, the 20-year concept for Highway 162 is a two-lane conventional highway from the Glenn County line to Wilbur Road. From Wilbur Road to Oakvale Avenue, the 20-year concept and ultimate facility is a four-lane conventional highway. To the east, State Route 162 would then narrow to a conventional two-lane highway with truck climbing lanes. State Route 162 has a 20-year concept LOS D west of State

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1 Caltrans, 2009, State Route 70 Transportation Concept Report.
3 Caltrans, 2000, State Route 149 Transportation Concept Report.
Route 70 and east of Oakvale Avenue. Between State Route 70 and Foothill Boulevard, State Route 162 has a concept LOS E.

♦ **State Route 191:** The *State Route 191 Transportation Concept Report* envisions this as remaining a two-lane conventional highway with a concept LOS D south of Paradise and LOS E through Paradise.

2. **Butte County Association of Governments Plans**

BCAG has prepared several transportation-related plans for Butte County, as described below.

a. **Regional Transportation Plan**

The *2008-2035 Regional Transportation Plan* (RTP) is a federally mandated long-range, fiscally constrained multi-modal transportation plan for Butte County. The RTP has a 27-year horizon that covers the period between 2008 and 2035 and is intended as a blueprint for transportation improvements in the county. The RTP was developed by BCAG in cooperation with Caltrans, Butte County, and other stakeholders. However, BCAG maintains a decision-making role; Butte County does not make decisions regarding the RTP. The 2008-2035 RTP includes a number of planned capacity improvements and transit projects that are anticipated to receive funding by 2035. The roadway capacity improvements are summarized in Table 4.13-3.

Beyond the capacity enhancing projects, the RTP anticipates funding for non-capacity/safety improvements, including improvements at the Neal Road/State Route 99 intersection and reconstruction of Forest Highway 171 from Inskip to Butte Meadows. It is important to note that these RTP improvements are not policy established by General Plan 2030, but are assumed since these capacity and non-capacity improvements are reasonably foreseeable within the horizon of General Plan 2030. Although they are reasonably foreseeable, some RTP projects are not consistent with County plans. Specifically, the “Midway to Entler Avenue Connection” and “Southgate Avenue” improvements included in Table 4.13-3, are not consistent with the land planning.

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<table>
<thead>
<tr>
<th>Roadway</th>
<th>Jurisdiction</th>
<th>Planned Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>20th Street</td>
<td>Chico</td>
<td>Widen to four lanes between Notre Dame Boulevard and Bruce Road.</td>
</tr>
<tr>
<td>Bruce Road</td>
<td>Chico</td>
<td>Widen to four lanes between State Route 32 and the Skyway.</td>
</tr>
<tr>
<td>Cohasset Road</td>
<td>Chico</td>
<td>Widen to four lanes between Boeing Avenue and Eaton Road.</td>
</tr>
<tr>
<td>Eaton Road</td>
<td>Butte County/Chico</td>
<td>Construct new two-lane road between State Route 32 and current western terminus; widen to four lanes between new western extension and Lassen Avenue; build new four-lane road between Floral Avenue and Manzanita Avenue.</td>
</tr>
<tr>
<td>Entler Avenue</td>
<td>Butte County</td>
<td>Extend two-lane road south to Estates Drive.</td>
</tr>
<tr>
<td>Esplanade</td>
<td>Chico</td>
<td>Widen to four lanes between Nord Highway and Eaton Road.</td>
</tr>
<tr>
<td>Fair Street</td>
<td>Chico</td>
<td>Construct new two-lane road between current southern terminus and Entler Avenue.</td>
</tr>
<tr>
<td>Manzanita Avenue</td>
<td>Chico</td>
<td>Widen to four lanes between East Avenue and Chico Canyon Way.</td>
</tr>
<tr>
<td>Midway</td>
<td>Chico</td>
<td>Widen to four lanes between Park Avenue and Hegan Lane.</td>
</tr>
<tr>
<td>Midway to Entler Avenue Connection</td>
<td>Butte County/Chico</td>
<td>New two-lane road between Midway and Entler Avenue, could be accommodated by extension of Speedway Avenue and Southgate Avenue.</td>
</tr>
<tr>
<td>New Interchanges</td>
<td>Chico/Caltrans</td>
<td>New interchanges on State Route 99 in South Chico, which could be accommodated by construction of the Southgate Interchange and potentially reconstruction of the Skyway/State Route 99 interchange.</td>
</tr>
<tr>
<td>Notre Dame Boulevard</td>
<td>Chico</td>
<td>Extend two-lane road between Little Chico Creek (El Monte Avenue terminus) and 20th Street; construct new two-lane road from southern terminus to Southgate Avenue.</td>
</tr>
<tr>
<td>Southgate Avenue</td>
<td>Butte County/Chico</td>
<td>New four-lane road between State Route 99 and the Skyway and new two-lane road from State Route 99 to Midway.</td>
</tr>
<tr>
<td>State Route 32</td>
<td>Caltrans</td>
<td>Widen to four lanes between Fir Street and Yosemite Drive.</td>
</tr>
<tr>
<td>State Route 70</td>
<td>Caltrans</td>
<td>New passing lanes between State Route 162 and Yuba County line.</td>
</tr>
<tr>
<td>State Route 99</td>
<td>Caltrans</td>
<td>New auxiliary lanes between First Street and 20th Street.</td>
</tr>
</tbody>
</table>

*Butte County General Plan 2030 land use designations, as well as specific General Plan 2030 Chico Area Greenline policy, do not allow or contemplate significant additional growth in the region west of the Southgate intersection at State Route 99. Board direction on March 14, 2000 directed staff to list the recommended alignments in the BCAG State Route 99/Southgate Interchange and Circulation study in the Circulation Element, including the Southgate connection to Midway, as well as a policy statement regarding the preservation of agriculture viability in the project area.

use designations and policies in General Plan 2030, nor with direction from the Butte County Board of Supervisors on March 14, 2000. Butte County General Plan 2030 land use designations, as well as specific General Plan 2030 Chico Area Greenline policy, do not allow or contemplate significant additional growth in the region west of the Southgate intersection at State Route 99. Board direction on March 14, 2000 directed staff to list the recommended alignments in the BCAG State Route 99/Southgate Interchange and Circulation study in the Circulation Element, including the Southgate connection to Midway, as well as a policy statement regarding the preservation of agricultural viability in the project area.

b. Coordinated Public Transit-Human Services Transportation Plan

BCAG produced a Coordinated Public Transit-Human Services Transportation Plan for Butte County in 2008, which identifies existing public transit services in the county, unmet transit needs, and recommendations for providing future services.

3. County Regulations and Policies

Similar to the State and local entities, Counties establish level of service policies that define acceptable operations on county roadways outside of incorporated areas. The existing Butte County General Plan Circulation Element, adopted in May 1984, establishes LOS C as the standard for acceptable operations, except where fiscal, environmental, or site constraints make achieving LOS C operations cost prohibitive and LOS D conditions are considered acceptable.

General Plan 2030 proposes a new level of service policy for Butte County, which is described further in Section C.3. For assessing County roadway segment impacts, the proposed General Plan 2030 level of service policies described in Sections C.2 and C.3 are used.

The County provides guidance on the design of roadway facilities through its Improvement Standards, which were adopted in 2006 and updated in 2009 to include standards for the Paradise SOI. This document includes minimum
standards for the design and preparation of plans for the construction of streets, highways, alleys, drainage, sewerage, street lighting, water supply facilities, fire protection, and related public improvements.

The County’s guidance on emergency access is typically provided in a few regulatory documents. The 2006 Improvement Standards include some guidance on required site access and driveway standards. In addition, the General Plan typically establishes policies guiding emergency access standards for future development.

The County also adopted the Countywide Bikeway Master Plan in 1998, which is currently in the process of being updated for adoption as the Butte County Bikeway Master Plan for the Unincorporated Area. The proposed Bikeway Master Plan provides maps showing planned future bikeway facilities in the unincorporated county area, as well as connectivity to existing and proposed bikeway facilities within the municipal jurisdictions.

County regulations guiding air traffic stem largely from adopted the ALUCP. In addition to guiding land use development in the vicinity airports in Butte County, this Plan is also meant to address safety issues, including any design or placement of an airport facility that would lead to additional air traffic hazards.

4. Municipal Regulations and Policies
Butte County includes five incorporated municipalities: Biggs, Chico, Gridley, Oroville, and Paradise. The roadway capacity level of service policies adopted by each of these jurisdictions guides what is considered to be acceptable operations on roadways in their jurisdictional boundaries and respective spheres of influence (SOIs). Biggs, Gridley, and Paradise have adopted LOS C policies. Oroville has adopted, and Chico is considering adopting, a flexible LOS D policy that allows for LOS E to be considered acceptable on select facilities where other constraints make achieving LOS D operations infeasible.
B. Existing Conditions

This section provides background information about Butte County’s vehicular circulation, transit, bicycle facilities, sidewalks, aviation, and rail.

1. Vehicular Circulation

The Butte County roadway system contains over 2,100 miles of public roadways, including county roads, streets in incorporated areas, and State highways, that carry an estimated 1.7 billion miles of travel demand annually, according to the 2000 Caltrans California Motor Vehicle Travel Forecast. Figure 4.13-1 shows Butte County’s major roadway facilities.

The geography of Butte County constrains overland transportation and circulation. In the flat valley of the southwestern portion of the county, the circulation system is affected most significantly by the Feather River. The river bisects the lower portion of the county running south. In the foothills and mountains of the eastern part of the county, travel is limited mainly to east-west roadways that run through valleys and canyons and along ridges. Past development and human-made barriers also constrain automobile traffic. For instance, the circulation system is affected by the railroad tracks running north-south parallel to the State highways.

State highways in Butte County are under Caltrans jurisdiction and are constructed to conventional highway standards, with the exception of several segments of State Route 99 in the Chico area and State Route 70 in the Oroville area that are designated as freeways. State Routes 70, 99, and 149 are the major highways serving the county, and State Routes 32, 162, and 191 are also key highway routes serving Butte County.

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6 Conventional highways include at-grade intersections whereas freeways are characterized by higher speeds and grade-separated interchanges.
Figure 4.13-1

Major roadway facilities in Butte County. The map includes various roads and airports, with annotations for major and minor roadways, spheres of influence, city/town limits, and county boundaries. The map is sourced from Butte County GIS, 2009.
♦ State Route 32 is a mainly east-west highway that connects Butte County with Interstate 5 to the west and State Route 36/89 to the east, which provides connections to Susanville and Quincy.

♦ State Route 70 splits from State Route 99 south of Marysville, traversing north to Oroville and continuing northeast toward Quincy.

♦ State Route 99 travels north-south, connecting Butte County with Yuba City and Sacramento to the south and Red Bluff to the northwest.

♦ State Route 149 connects State Route 99 and State Route 70, providing a connection between the Cities of Chico and Oroville.

♦ State Route 162 is a mainly east-west highway that connects southern Butte County (including the City of Oroville) with Interstate 5 in Glenn County.

♦ State Route 191 travels north-south, connecting State Route 70 in the south to the Paradise/Magalia area in the north.

As a result of Senate Bill 45 in 1997, 75 percent of the revenues in the State Transportation Improvement Program (STIP) are allocated to and controlled by regional transportation planning agencies, such as BCAG. The remaining 25 percent of the STIP is allocated to and controlled by Caltrans. The shift in funding requires regional transportation planning agencies to identify and develop the State highway system improvements within the region. While later legislation enabled the programming of local projects in the STIP process, it is important to understand that Caltrans does not have the funding capacity to fund all State highway improvements within the region and that local funding is necessary to address deficiencies in the State highway system.

To evaluate how major roadway facilities in Butte County operate today, PM peak hour counts were collected and compared to the established level of service criteria, which are based on the threshold capacities of each of these roadways. Facilities were selected for analysis either because they were believed to carry relatively high volumes or because they provide an important connection to populated areas or major county resources. Table 4.13-4 shows
### Table 4.13-4  **Existing Level of Service on Key Roadway Facilities**

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Acceptable Criteria for Segment (LOS)</th>
<th>Existing Roadway Type</th>
<th>PM Peak Hour Volume</th>
<th>2006 LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State Route 32</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muir Ave. to East Ave.</td>
<td>Caltrans</td>
<td>E</td>
<td>Minor 2-Lane Highway</td>
<td>1,600</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>East Ave. to W. Sacramento Ave.</td>
<td>Caltrans</td>
<td>E</td>
<td>Minor 2-Lane Highway</td>
<td>1,750</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>W. Sacramento Ave. to W. 1st St.</td>
<td>Caltrans</td>
<td>E</td>
<td>Minor 2-Lane Highway</td>
<td>2,000</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>W. 1st St. to W. 5th St.</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane Arterial, Divided</td>
<td>2,800</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>W. 5th St. to 8th/9th/Walnut St.</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,500</td>
<td>A-C</td>
<td></td>
</tr>
<tr>
<td>8th St. (1-Way WB), Walnut to Main</td>
<td>Caltrans</td>
<td>E</td>
<td>3-Lane Arterial, One-Way Roadway</td>
<td>1,100</td>
<td>A-C</td>
<td></td>
</tr>
<tr>
<td>9th St. (1-Way EB), Walnut to Main</td>
<td>Caltrans</td>
<td>E</td>
<td>3-Lane Arterial, One-Way Roadway</td>
<td>1,000</td>
<td>A-C</td>
<td></td>
</tr>
<tr>
<td>8th St. (WB), Main to State Route 99</td>
<td>Caltrans</td>
<td>E</td>
<td>3-Lane Arterial, One-Way Roadway</td>
<td>1,400</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>9th St. (EB), Main St. to State Route 99</td>
<td>Caltrans</td>
<td>E</td>
<td>3-Lane Arterial, One-Way Roadway</td>
<td>1,600</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>State Route 99 to Yosemite Dr.</td>
<td>Caltrans</td>
<td>D/E</td>
<td>Major 2-Lane Highway</td>
<td>1,500</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>Yosemite Dr. to Humboldt Rd. (Hog Springs)</td>
<td>Caltrans</td>
<td>D</td>
<td>Major 2-Lane Highway</td>
<td>1,050</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>Humboldt Rd. (H.S.) to Robert E. Lee Dr. (F.R.)</td>
<td>Caltrans</td>
<td>D</td>
<td>Major 2-Lane Highway</td>
<td>400</td>
<td>A-C</td>
<td></td>
</tr>
<tr>
<td><strong>State Route 70</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yuba County Line to Lower Honcut Rd.</td>
<td>Caltrans</td>
<td>E</td>
<td>Major 2-Lane Highway</td>
<td>1,150</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>Lower Honcut Rd. to East Gridley Rd.</td>
<td>Caltrans</td>
<td>E</td>
<td>Major 2-Lane Highway</td>
<td>1,250</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>East Gridley Rd. to Palermo Rd.</td>
<td>Caltrans</td>
<td>E</td>
<td>Major 2-Lane Highway</td>
<td>1,200</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>Palermo Rd. to State Route 162</td>
<td>Caltrans</td>
<td>E</td>
<td>Major 2-Lane Highway</td>
<td>1,350</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td><strong>State Route 162 to Montgomery St.</strong></td>
<td>Caltrans</td>
<td>D</td>
<td>4-Lane Divided Freeway</td>
<td>1,800</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>Montgomery St. to Grand Ave.</td>
<td>Caltrans</td>
<td>D</td>
<td>4-Lane Divided Freeway</td>
<td>2,800</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Grand Ave. to State Route 149</td>
<td>Caltrans</td>
<td>D</td>
<td>4-Lane Divided Freeway</td>
<td>1,950</td>
<td>A-C</td>
<td></td>
</tr>
<tr>
<td><strong>State Route 149 to State Route 191</strong></td>
<td>Caltrans</td>
<td>D</td>
<td>Major 2-Lane Highway</td>
<td>950</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4.13-4  Existing Level of Service on Key Roadway Facilities (continued)

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Acceptable Criteria for Segment (LOS)</th>
<th>Existing Roadway Type$^a$</th>
<th>PM Peak Hour Volume</th>
<th>2006 LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Route 191 to Pentz Rd.</td>
<td>Caltrans</td>
<td>D</td>
<td>Major 2-Lane Highway</td>
<td>300</td>
<td>A-C</td>
<td></td>
</tr>
<tr>
<td>Pentz Rd. to Big Bend Rd. (Concow)</td>
<td>Caltrans</td>
<td>D</td>
<td>Minor 2-Lane Highway</td>
<td>200</td>
<td>A-C</td>
<td></td>
</tr>
<tr>
<td>Sutter County Line to Archer Ave.</td>
<td>Caltrans</td>
<td>E</td>
<td>2-Lane Arterial</td>
<td>1,800</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Archer Ave. to Spruce St. (Gridley)</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,350</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>Spruce St. to East Biggs Hwy.</td>
<td>Caltrans</td>
<td>E</td>
<td>Major 2-Lane Highway</td>
<td>1,650</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>East Biggs Hwy. to State Route 162 (East)</td>
<td>Caltrans</td>
<td>E</td>
<td>Major 2-Lane Highway</td>
<td>1,100</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>State Route 162 (East) to State Route 149</td>
<td>Caltrans</td>
<td>E</td>
<td>Major 2-Lane Highway</td>
<td>1,000</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>State Route 149 to Durham - Pentz Rd.</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane, Multi-Lane Highway</td>
<td>2,500</td>
<td>A-C</td>
<td></td>
</tr>
<tr>
<td>Durham - Pentz Rd to Skyway</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane, Multi-Lane Highway</td>
<td>2,550</td>
<td>D</td>
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</tr>
<tr>
<td>Skyway to East 20th St.</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane Freeway</td>
<td>4,650</td>
<td>A-C</td>
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<tr>
<td>East 20th to State Route 32</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane Freeway</td>
<td>6,400</td>
<td>D</td>
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<tr>
<td>State Route 32 to Cohasset Rd.</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane Freeway</td>
<td>6,450</td>
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<tr>
<td>Cohasset Rd. to East Ave.</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane Freeway</td>
<td>3,750</td>
<td>A-C</td>
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</tr>
<tr>
<td>East Ave. to Eaton Rd.</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane Freeway</td>
<td>2,650</td>
<td>A-C</td>
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<tr>
<td>Eaton Rd. to Keefer Rd.</td>
<td>Caltrans</td>
<td>E</td>
<td>2-Lane Arterial</td>
<td>1,700</td>
<td>D</td>
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<tr>
<td>State Route 70 to State Route 99</td>
<td>Caltrans</td>
<td>D</td>
<td>2-Lane Freeway</td>
<td>1,550</td>
<td>A-C</td>
<td></td>
</tr>
<tr>
<td>Glenn County line to State Route 99 (south intersect)</td>
<td>Caltrans</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>150</td>
<td>A-C</td>
<td></td>
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<tr>
<td>State Route 99 (north intersect) to Larkin Rd.</td>
<td>Caltrans</td>
<td>D</td>
<td>Major 2-Lane Highway</td>
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<td>D</td>
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<tr>
<td>Larkin Rd. to State Route 70</td>
<td>Caltrans</td>
<td>D</td>
<td>Major 2-Lane Highway</td>
<td>1,315</td>
<td>D</td>
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<tr>
<td>State Route 70 to Feather River Blvd.</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane Arterial, Divided</td>
<td>2,850</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>Feather River Blvd. to Lincoln Blvd.</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane Arterial, Divided</td>
<td>2,900</td>
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<td></td>
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### Existing Level of Service on Key Roadway Facilities (Continued)

<table>
<thead>
<tr>
<th>Roadway Segment</th>
<th>Jurisdiction</th>
<th>Acceptable Criteria for Segment (LOS)</th>
<th>Existing Roadway Type</th>
<th>PM Peak Hour Volume</th>
<th>2006 LOS</th>
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<tbody>
<tr>
<td>Lincoln Blvd. to Olive Hwy.</td>
<td>Caltrans</td>
<td>E</td>
<td>4-Lane Arterial, Divided</td>
<td>3,050</td>
<td>D</td>
</tr>
<tr>
<td>Olive Hwy. to Lower Wyandotte Rd.</td>
<td>Caltrans</td>
<td>E</td>
<td>2-Lane Arterial</td>
<td>2,950</td>
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<tr>
<td>Lower Wyandotte Rd. to Foothill Blvd.</td>
<td>Caltrans</td>
<td>E</td>
<td>Major 2-Lane Highway</td>
<td>1,850</td>
<td>E</td>
</tr>
<tr>
<td>Foothill Blvd. to Canyon Dr.</td>
<td>Caltrans</td>
<td>D</td>
<td>Major 2-Lane Highway</td>
<td>1,200</td>
<td>D</td>
</tr>
<tr>
<td>Canyon Dr. to Forbestown Rd.</td>
<td>Caltrans</td>
<td>D</td>
<td>Minor 2-Lane Highway</td>
<td>650</td>
<td>A-C</td>
</tr>
<tr>
<td>State Route 70 to Durham-Pentz Rd.</td>
<td>Caltrans</td>
<td>D</td>
<td>Minor 2-Lane Highway</td>
<td>650</td>
<td>A-C</td>
</tr>
<tr>
<td>Durham-Pentz Rd. to Airport Rd.</td>
<td>Caltrans</td>
<td>D</td>
<td>Minor 2-Lane Highway</td>
<td>650</td>
<td>A-C</td>
</tr>
<tr>
<td>Airport Rd. to Bushmann Rd.</td>
<td>Caltrans</td>
<td>E</td>
<td>Minor 2-Lane Highway</td>
<td>900</td>
<td>D</td>
</tr>
<tr>
<td>Buschmann Rd. to Pearson Rd.</td>
<td>Caltrans</td>
<td>E</td>
<td>Minor 2-Lane Highway</td>
<td>950</td>
<td>D</td>
</tr>
<tr>
<td>Durham-Dayton Rd. to Grainland Ave.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>100</td>
<td>A-C</td>
</tr>
<tr>
<td>Grainland Ave. to State Route 162</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>50</td>
<td>A-C</td>
</tr>
<tr>
<td>Biggs to State Route 99</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>200</td>
<td>A-C</td>
</tr>
<tr>
<td>State Route 99 to Larkin Rd.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>250</td>
<td>A-C</td>
</tr>
<tr>
<td>Clark Rd.</td>
<td>Wagstaff Rd. to Skyway</td>
<td>Paradise</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>970</td>
</tr>
<tr>
<td>State Route 99 to East Ave.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,100</td>
<td>D</td>
</tr>
<tr>
<td>East Ave. to Lupin Rd.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,500</td>
<td>A-C</td>
</tr>
<tr>
<td>Lupin Rd. to E. Lassen Ave.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,200</td>
<td>A-C</td>
</tr>
<tr>
<td>Lassen Ave. to Boeing Dr. (Chico M. Airport)</td>
<td>Chico</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>1,250</td>
<td>D</td>
</tr>
<tr>
<td>Boeing Dr. to Keefer Rd.</td>
<td>Chico SOL/Butte</td>
<td>D/C</td>
<td>2-Lane Arterial</td>
<td>300</td>
<td>A-C</td>
</tr>
<tr>
<td>Keefer Rd. to Vilas Rd.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>200</td>
<td>A-C</td>
</tr>
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</table>
### Table 4.13-4  **Existing Level of Service on Key Roadway Facilities** (continued)

<table>
<thead>
<tr>
<th>Roadway Segment</th>
<th>Jurisdiction</th>
<th>Existing Roadway Type&lt;sup&gt;a&lt;/sup&gt;</th>
<th>PM Peak Hour Volume</th>
<th>2006 LOS</th>
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</thead>
<tbody>
<tr>
<td>Colusa County line to Pennington Rd.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>50</td>
<td>A-C</td>
</tr>
<tr>
<td>Pennington Rd. to Biggs Gridley Rd.</td>
<td>Butte/Gridley SOI</td>
<td>2-Lane Arterial</td>
<td>100</td>
<td>A-C</td>
</tr>
<tr>
<td>Biggs Gridley Rd. to State Route 99</td>
<td>Gridley</td>
<td>2-Lane Arterial</td>
<td>750</td>
<td>A-C</td>
</tr>
<tr>
<td>State Route 32 to Hegan Lane</td>
<td>Chico SOI/Butte</td>
<td>2-Lane Arterial</td>
<td>600</td>
<td>A-C</td>
</tr>
<tr>
<td>Hegan Lane to Durham-Dayton Hwy.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>370</td>
<td>A-C</td>
</tr>
<tr>
<td>Dayton Rd. to Midway</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>430</td>
<td>A-C</td>
</tr>
<tr>
<td>Midway to Stanford Lane</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>200</td>
<td>A-C</td>
</tr>
<tr>
<td>Stanford Lane to State Route 99</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>200</td>
<td>A-C</td>
</tr>
<tr>
<td>State Route 99 to State Route 191</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>818</td>
<td>A-C</td>
</tr>
<tr>
<td>State Route 191 to Pentz Rd.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>197</td>
<td>A-C</td>
</tr>
<tr>
<td>State Route 32 to Cussick Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Divided</td>
<td>1,350</td>
<td>A-C</td>
</tr>
<tr>
<td>Cussick Ave. to Esplanade</td>
<td>Chico</td>
<td>4-Lane Arterial, Divided</td>
<td>2,050</td>
<td>D</td>
</tr>
<tr>
<td>Esplanade to State Route 99</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,250</td>
<td>D</td>
</tr>
<tr>
<td>State Route 99 to Cohasset Rd.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,200</td>
<td>A-C</td>
</tr>
<tr>
<td>Cohasset Rd. to Floral Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,500</td>
<td>A-C</td>
</tr>
<tr>
<td>Floral Ave. to Mariposa Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,750</td>
<td>A-C</td>
</tr>
<tr>
<td>Mariposa Ave. to Marigold Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,000</td>
<td>A-C</td>
</tr>
<tr>
<td>Marigold Ave. to Manzanita Ave.</td>
<td>Chico</td>
<td>2-Lane Arterial</td>
<td>1,000</td>
<td>D</td>
</tr>
<tr>
<td>East Ave. to Vallombrosa Ave.</td>
<td>Chico</td>
<td>2-Lane Arterial</td>
<td>1,008</td>
<td>D</td>
</tr>
<tr>
<td>California Park Dr. to State Route 32</td>
<td>Chico</td>
<td>2-Lane Arterial</td>
<td>1,200</td>
<td>D</td>
</tr>
</tbody>
</table>
### Table 4.13-4 Existing Level of Service on Key Roadway Facilities (continued)

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Acceptable Criteria for Segment (LOS)</th>
<th>Existing Roadway Typea</th>
<th>PM Peak Hour Volume</th>
<th>2006 LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Gridley Rd.</td>
<td>State Route 99 to Larkin Rd.</td>
<td>Gridley/Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>551</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Larkin Rd. to State Route 70</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>550</td>
<td>A-C</td>
</tr>
<tr>
<td>Eaton Rd.</td>
<td>Esplanade to State Route 99</td>
<td>Chico</td>
<td>D</td>
<td>3-Lane Arterial</td>
<td>1,346</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>State Route 99 to Hicks Lane</td>
<td>Chico</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>950</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Hicks Lane to Cohasset Rd.</td>
<td>Chico</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>924</td>
<td>A-C</td>
</tr>
<tr>
<td>Esplanade</td>
<td>State Route 99 to Garner Lane</td>
<td>Chico</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>100</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Garner Lane to Eaton Rd.</td>
<td>Chico</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>819</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Eaton Rd. to Lassen Ave.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,276</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Lassen Ave. to East Ave.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,850</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>East Ave. to Cohasset Rd.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>1,850</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Cohasset Rd. to E. 9th Ave.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>2,200</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>E. 9th Ave. to E. 1st Ave.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>1,950</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>E. 1st Ave. to Main St./Broadway</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>2,200</td>
<td>D</td>
</tr>
<tr>
<td>Main St. (NB)</td>
<td>Esplanade/E. 1st St. to 9th St.</td>
<td>Chico</td>
<td>D</td>
<td>3-Lane Arterial, One-Way Roadway</td>
<td>1,250</td>
<td>A-C</td>
</tr>
<tr>
<td>Broadway (SB)</td>
<td>Esplanade/E. 1st St. to 9th St.</td>
<td>Chico</td>
<td>D</td>
<td>3-Lane Arterial, One-Way Roadway</td>
<td>950</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>E. 9th St. to 16th St.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,650</td>
<td>A-C</td>
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<tr>
<td></td>
<td>E. 16th St. to E. 20th St.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,487</td>
<td>A-C</td>
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<tr>
<td></td>
<td>E. 20th St. to East Park Ave.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>1,150</td>
<td>A-C</td>
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<tr>
<td>E. Park Ave.</td>
<td>Park Ave. to State Route 99</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,250</td>
<td>D</td>
</tr>
<tr>
<td>Forbestown Rd.</td>
<td>State Route 162 to Lumpkin Rd.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>250</td>
<td>A-C</td>
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</table>
**Table 4.13-4  **

**Existing Level of Service on Key Roadway Facilities** (continued)

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Acceptable Criteria for Segment (LOS)</th>
<th>Existing Roadway Typea</th>
<th>PM Peak Hour Volume</th>
<th>2006 LOS</th>
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</thead>
<tbody>
<tr>
<td>Hegan Lane</td>
<td>Dayton Rd. to S.P. Railroad tracks</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>350</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>S.P. Railroad tracks to Midway</td>
<td>Chico/Chico SOI</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>400</td>
<td>A-C</td>
</tr>
<tr>
<td>Honey Run Rd.</td>
<td>Skyway to Centerville Rd.</td>
<td>Butte</td>
<td>C</td>
<td>Major 2-Lane Collector</td>
<td>150</td>
<td>A-C</td>
</tr>
<tr>
<td>Centerville Rd.</td>
<td>Honey Run Rd. to Nimshew Rd.</td>
<td>Butte</td>
<td>C</td>
<td>Major 2-Lane Collector</td>
<td>100</td>
<td>A-C</td>
</tr>
<tr>
<td>Nimshew Rd.</td>
<td>Centerville to Skyway</td>
<td>Butte/Paradise SOI</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>50</td>
<td>A-C</td>
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<tr>
<td>Larkin Rd.</td>
<td>State Route 162 to E. Hamilton Rd.</td>
<td>Oroville/ Oroville SOI/Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>358</td>
<td>A-C</td>
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<tr>
<td></td>
<td>E. Hamilton Rd. to East Biggs Hwy.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
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<tr>
<td></td>
<td>East Biggs Hwy. to E. Gridley Hwy.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>50</td>
<td>A-C</td>
</tr>
<tr>
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<td>E. Gridley Hwy. to E. Evans Reimer Rd.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
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<tr>
<td>Lincoln Blvd.</td>
<td>State Route 162 to Marysville Baggett Rd.</td>
<td>Oroville/ Oroville SOI</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>1,100</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Marysville Baggett Rd. to Monte Vista Ave.</td>
<td>Oroville SOI</td>
<td>D</td>
<td>3-Lane Arterial, Undivided</td>
<td>850</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Monte Vista Ave. to Ophir Rd.</td>
<td>Oroville SOI</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>700</td>
<td>A-C</td>
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<tr>
<td></td>
<td>Ophir Rd. to Palermo Rd.</td>
<td>Butte/ Oroville SOI</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>500</td>
<td>A-C</td>
</tr>
<tr>
<td>Lower Honcut Rd.</td>
<td>State Route 70 to Palermo Honcut Hwy.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>50</td>
<td>A-C</td>
</tr>
<tr>
<td>Palermo Honcut Hwy. to LaPorte Rd.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>50</td>
<td>A-C</td>
<td></td>
</tr>
<tr>
<td>LaPorte Rd.</td>
<td>Lower Honcut Rd. to Oro-Bangor Hwy.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>100</td>
<td>A-C</td>
</tr>
<tr>
<td>Lower Wyandotte Rd.</td>
<td>State Route 162 to Oro-Bangor Hwy.</td>
<td>Oroville/ Oroville SOI</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>712</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Oro-Bangor Hwy. to Ophir Rd.</td>
<td>Oroville SOI</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>600</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Ophir Rd. to Foothill Blvd.</td>
<td>Oroville SOI</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>573</td>
<td>A-C</td>
</tr>
<tr>
<td>Upper Palermo Rd.</td>
<td>Ophir Rd. to Palermo Rd.</td>
<td>Oroville SOI/Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>311</td>
<td>A-C</td>
</tr>
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</table>
### Table 4.13-4  
**Existing Level of Service on Key Roadway Facilities (continued)**

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Acceptable Criteria for Segment (LOS)</th>
<th>Existing Roadway Type(a)</th>
<th>PM Peak Hour Volume</th>
<th>2006 LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palermo Honcut Hwy.</td>
<td>Palermo Rd. to Lower Honcut Rd.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>100</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>East Park Ave. to Hegan Lane</td>
<td>Chico</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>1,399</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>Hegan Lane to Southgate Extension</td>
<td>Chico SOI</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>857</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Southgate Extension to Durham-Dayton Rd</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>857</td>
<td>A-C</td>
</tr>
<tr>
<td>Midway</td>
<td>State Route 70 to Lincoln Blvd.</td>
<td>Oroville</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>637</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Lincoln Blvd. to Table Mountain Blvd.</td>
<td>Oroville</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>625</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Lincoln Blvd. to Lower Wyandotte Rd.</td>
<td>Oroville SOI</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>196</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Lower Wyandotte Rd. to Foothill Blvd.</td>
<td>Oroville SOI</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>200</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Foothill Blvd. to Swedes Flat Rd.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>178</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>South of Swedes Flat Rd.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>186</td>
<td>A-C</td>
</tr>
<tr>
<td>Palermo Rd.</td>
<td>Upper Palermo Rd. to Lincoln Blvd.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>120</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Lincoln Blvd. to Lone Tree Rd.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>110</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Lone Tree Rd. to State Route 70</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>100</td>
<td>A-C</td>
</tr>
<tr>
<td>Pentz Rd.</td>
<td>State Route 70 to Messilla Valley Rd.</td>
<td>Butte</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>330</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Messilla Valley Rd. to Malibu Dr.</td>
<td>Butte/Paradise SOI</td>
<td>C</td>
<td>2-Lane Arterial</td>
<td>500</td>
<td>A-C</td>
</tr>
<tr>
<td>Skyway</td>
<td>State Route 99 to Notre Dame Blvd.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>3,139</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>Notre Dame Blvd. to Bruce Rd.</td>
<td>Chico</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>2,200</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>Bruce Rd. to Honey Run Rd.</td>
<td>Chico/Chico SOI</td>
<td>D</td>
<td>4-Lane Undivided Highway</td>
<td>3,400</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Honey Run Rd. to Neal Rd.</td>
<td>Butte/Paradise SOI/Paradise</td>
<td>C</td>
<td>4-Lane High Capacity/Limited Access Express Way</td>
<td>2,500</td>
<td>A-C</td>
</tr>
</tbody>
</table>
**Table 4.13-4  Existing Level of Service on Key Roadway Facilities (continued)**

<table>
<thead>
<tr>
<th>Roadway Segment</th>
<th>Jurisdiction</th>
<th>Acceptable Criteria for Segment (LOS)</th>
<th>Existing Roadway Type</th>
<th>PM Peak Hour Volume</th>
<th>2006 LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neal Rd. to Pearson Rd.</td>
<td>Paradise</td>
<td>C 4-Lane, Multi-Lane Highway</td>
<td></td>
<td>2,500</td>
<td>A-C</td>
</tr>
<tr>
<td>Pearson Rd. to Bille Rd.</td>
<td>Paradise</td>
<td>C 4-Lane Arterial, Undivided</td>
<td></td>
<td>1,940</td>
<td>D</td>
</tr>
<tr>
<td>Bille Rd. to Wagstaff Rd.</td>
<td>Paradise</td>
<td>C 2-Lane Arterial</td>
<td></td>
<td>1,700</td>
<td>D</td>
</tr>
<tr>
<td>Wagstaff Rd. to Clark Rd.</td>
<td>Paradise</td>
<td>C 2-Lane Arterial</td>
<td></td>
<td>1,000</td>
<td>D</td>
</tr>
<tr>
<td>Clark Rd. to Pentz Rd.</td>
<td>Paradise</td>
<td>C 2-Lane Arterial</td>
<td></td>
<td>1,472</td>
<td>D</td>
</tr>
<tr>
<td>Pentz Rd. to S. Park Rd.</td>
<td>Paradise SOI</td>
<td>C 2-Lane Arterial</td>
<td></td>
<td>1,604</td>
<td>D</td>
</tr>
<tr>
<td>South Park Rd. to Nimshew Rd.</td>
<td>Paradise SOI</td>
<td>C 2-Lane Arterial</td>
<td></td>
<td>1,000</td>
<td>D</td>
</tr>
<tr>
<td>Nimshew Rd. to Lovelock Rd.</td>
<td>Paradise SOI/Butte</td>
<td>C 2-Lane Arterial</td>
<td></td>
<td>200</td>
<td>A-C</td>
</tr>
<tr>
<td>Lovelock Rd. to Powellton Rd.</td>
<td>Butte</td>
<td>C 2-Lane Arterial</td>
<td></td>
<td>100</td>
<td>A-C</td>
</tr>
<tr>
<td>Montgomery St. to County Center Dr.</td>
<td>Oroville</td>
<td>D 2-Lane Arterial</td>
<td></td>
<td>1,024</td>
<td>D</td>
</tr>
<tr>
<td>County Center Dr. to Garden Drive</td>
<td>Oroville</td>
<td>D 2-Lane Arterial</td>
<td></td>
<td>1,020</td>
<td>D</td>
</tr>
<tr>
<td>East of Feather River Blvd.</td>
<td>Oroville</td>
<td>D 2-Lane Arterial</td>
<td></td>
<td>613</td>
<td>A-C</td>
</tr>
<tr>
<td>Ophir Rd. to Palermo Rd.</td>
<td>Oroville SOI/Butte</td>
<td>C 2-Lane Arterial</td>
<td></td>
<td>110</td>
<td>A-C</td>
</tr>
<tr>
<td>State Route 162 to Lower Wyandotte Road</td>
<td>Oroville/ Oroville SOI</td>
<td>D 2-Lane Arterial</td>
<td></td>
<td>558</td>
<td>A-C</td>
</tr>
<tr>
<td>State Route 162 to Oro-Bangor Hwy</td>
<td>Butte/ Oroville SOI</td>
<td>D 2-Lane Arterial</td>
<td></td>
<td>242</td>
<td>A-C</td>
</tr>
</tbody>
</table>

* Existing roadways are classified as a collector when they do not include a median, and an arterial when they include a raised or striped median.

**Note:** Bold/shading = Segment operates at an unacceptable level of service.

**Source:** Fehr & Peers, 2009.
EXISTING DEFICIENT ROADWAY SEGMENTS

FIGURE 4.13-2

Roadway Segment with Deficient PM Peak Hour Operations

Airports

Highways

Railroad

Sources: Butte County GIS, 2009; Fehr & Peers, 2009.

Inset for Chico Area

Sources: Butte County GIS, 2009; Fehr & Peers, 2009.

EXISTING DEFICIENT ROADWAY SEGMENTS
the roadway facilities included in this analysis, as well as which jurisdiction establishes the level of service policy for the facility. The table also provides information about each roadway segment’s existing geometry, the PM peak hour traffic count volumes, and level of service operations observed in 2006. Segments that operate at unacceptable levels according to the level of service threshold criteria set by their respective jurisdiction are in bold type.

As the table shows, eleven roadway segments have operated unacceptably during the PM peak hour since 2006 based on the level of service standard established by the applicable State, County, or incorporated municipal jurisdiction. These existing deficiencies, illustrated on Figure 4.13-2, are as follows:

- State Route 32 between East Avenue and West 1st Street (two segments) – LOS F.
- State Route 70 from Montgomery Avenue to Grand Avenue (one segment) – LOS E.
- State Route 162 from Olive Highway to Lower Wyandotte Road in the City of Oroville (one segment) – LOS F.
- The Skyway from State Route 99 to Notre Dame Boulevard in the City of Chico (one segment) – LOS F.
- The Skyway from Pearson Road to Nimshew Road through the Town of Paradise and into unincorporated Butte County (six segments) – LOS D.

2. Public Transit System

Although the automobile is the primary mode of travel for Butte County, there are other modes of travel available, such as mass transit, paratransit, and private bus operators. Butte Regional Transit (B-Line) provides fixed route bus and paratransit services to Biggs, Chico, Gridley, Oroville, Paradise, and the unincorporated county. The B-Line intercity buses connect Biggs, Chico, Gridley, Oroville, and Paradise, and as well as with the two existing Tribal Rancherias and casinos. For seniors and disabled individuals, there are also a number of service providers and social service agencies that provide door-to-
doors service. Additional services that are open to the general public include Glenn Ride, which provides transportation from Chico to Glenn County; Plumas Transit, which provides weekly service between Chico and Quincy; and Greyhound and Amtrak Bus lines, which provide scheduled service from the Butte County area.

3. Bicycle System
Butte County adopted a Countywide Bikeway Master Plan in 1998, and, now that each of the five local jurisdictions has their own Bikeway Master plan, the County is currently in the process of updating it with the Butte County Bikeway Master Plan for the Unincorporated Area. These master plans identify the following classifications of bicycle facilities:

♦ **Class I Bike Paths** are designated for exclusive use by both bicyclists and pedestrians, and are separated from, but often adjacent to, roadways.

♦ **Class II Bike Lanes** usually consist of one-way lanes adjacent to the traffic lane on either side of the roadway, separated from the motor vehicle lane by a painted white stripe and designated with signs and permanent pavement markings. These facilities are intended for the exclusive use of bicyclists. However, in rural areas, bike lanes are located on the roadway shoulder, which is also utilized by pedestrians.

♦ **Class III Bike Routes** may be located on roadway facilities with sufficient width for shared motor vehicle and bicycle usage and are usually only designated by signs indicating the route and shared use.

In the Chico urban area, the County currently has an existing Class I bike path on the easterly side of the Midway extending from the Chico city limits on Fair Street south to Jones Avenue. Within the Chico urban area, there are also existing Class II bike lanes and Class III bike routes which connect with facilities located within Chico city limits and continue within the County’s jurisdiction. Several planned Class I bike paths and Class II bike lanes for the Chico urban area are shown in the Chico Urban Area Bicycle Plan on Figure 3 of the Countywide Bikeway Master Plan. A Class II bike lane was constructed in 2002 on El Monte Avenue, between East 8th Street and State Route.
32. All new County development and Public Works projects are reviewed for possible incorporation of bicycle facilities. Budgetary constraints and right-of-way issues may also restrict the design and incorporation of complete bicycle facilities.

In the greater Oroville area, two County bicycle facilities have recently been constructed or designated. In 2002, a Class I bike path was constructed adjacent to Palermo Road from Lincoln Boulevard to Palermo-Honcut Highway. In 2003, the Board of Supervisors designated Lincoln Boulevard from Oroville city limits south to Monte Vista Avenue as a Class II bike lane facility. Plans for future Oroville area bikeway facilities are shown in Figure 5 of the Countywide Bikeway Master Plan.

In the Durham area, an existing Class II bike lane facility runs along Durham-Dayton Highway from the Midway east to Lott Road. For the remaining portions of the county, existing urban bikeway facilities typically fall under the jurisdictions of the Cities of Biggs and Gridley or the Town of Paradise.

The County’s bikeway facilities in the unincorporated areas of Butte County are typically planned to interface with facilities planned by the local jurisdictions. Some of these facilities in the unincorporated areas are shown in Figures 9 and 9a of the Countywide Bikeway Master Plan. They include bikeway facilities along River Road, Chico River Road, and Old Humboldt Road in the Chico area. Bikeway facilities are also planned along the Skyway, Neal Road, Pentz Road, and Midway to connect Chico with Paradise and Durham. County bikeway facilities are also planned along Table Mountain Boulevard, Larkin Road, Gridley-Colusa Highway, Olive Highway, and Miners Ranch Road, among other corridors.

4. Pedestrian System
The majority of pedestrian facilities in the unincorporated area of Butte County consists of paved shoulders adjacent to rural roads. Where sidewalks exist, they are maintained by the County and are gradually being updated to
meet County and Americans with Disabilities Act (ADA) standards as part of the County’s Capital Improvement Program (CIP).

5. Aviation System
Air transportation in Butte County is served by a number of private and public airfields and heliports serving general aviation and agricultural users. Most of these are small fields for private use. Commercial flights to distant or out-of-State destinations are available at the Sacramento International Airport, about 60 miles south of Oroville.

On December 20, 2000, Butte County’s Airport Land Use Commission (ALUC) adopted the Butte County ALUCP. It establishes procedures and criteria for the ALUC to review proposed land use development and affected cities within the county for compatibility with airport activity. State law requires public access airports to develop comprehensive land use plans designating airport vicinity land use and clear zones. Such plans are to be adopted by the County’s ALUC, which consists of representatives as follows: two municipal representatives, two airport managers, two County Supervisors, and one member from the public at large.

The Butte County ALUCP is distinct from airport master plans, which address planning issues within a specific airport. The purpose of a compatibility plan is to ensure that incompatible development does not occur on lands surrounding the airport.

The 2000 ALUCP encompasses the Chico Municipal Airport, the Oroville Municipal Airport, the Paradise Skypark Airport, and the Ranchaero Airport. The Chico Municipal Airport is Butte County’s largest airport, serving one commercial airline and other private and public agency aviation. The Oroville Municipal Airport is the second largest airport and serves the south county areas. The Paradise Skypark Airport and Ranchaero Airport are privately owned and operated.
In addition to the airports covered in the 2000 ALUCP, there are two small private airfields in Butte County: the Richvale Airport, located at 1764 Richvale Highway, and the Johnson Ag-Viation, which is located between Highway 99 and the Riceton Highway directly west of the Thermalito Afterbay.

C. Standards of Significance

General Plan 2030 and the ALUCP override would have a significant transportation and circulation impact if they would:

♦ Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system. Specifically, cause a roadway facility to exceed, either individually or cumulatively, a level of service standard established by the State, County, or municipality that determines acceptable operations on that facility. Table 4.13-5 summarizes the level of service criteria for each jurisdiction.

♦ Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment).

♦ Result in inadequate emergency access.

♦ Result in inadequate parking capacity.

♦ Conflict with adopted policies, plans, or programs supporting alternative transportation.

♦ Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

These standards of significance are used for this analysis of General Plan 2030. However, these standards are not intended to be the same standards that will be applied to subsequent projects that are reviewed under General Plan 2030.

Since there are a variety of State, County, and local policies and regulations that guide determination of impacts on roadway facilities, a brief description of how roadway operations impacts are determined on each facility is
TABLE 4.13-5   LEVEL OF SERVICE CRITERIA BY JURISDICTION

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Level of Service Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caltrans</td>
<td>Varies; criteria for specific segments established in transportation concept reports summarized earlier in this chapter</td>
</tr>
<tr>
<td>Biggs/Biggs SOI</td>
<td>LOS C or better</td>
</tr>
<tr>
<td>Chico/Chico SOI</td>
<td>LOS D or better</td>
</tr>
<tr>
<td>Gridley/Gridley SOI</td>
<td>LOS C or better</td>
</tr>
<tr>
<td>Oroville/Oroville SOI</td>
<td>LOS D or better</td>
</tr>
<tr>
<td>Paradise/Paradise SOI</td>
<td>LOS C or better</td>
</tr>
<tr>
<td>Unincorporated Butte County outside of municipal SOIs</td>
<td>LOS C or better</td>
</tr>
</tbody>
</table>

provided below. This additional description is not provided for the other transportation impact categories, since these impacts do not vary by jurisdiction.

Roadway segment operations were analyzed with level of service as the primary measure of performance. The specific level of service standards established for identifying impacts on State, County, and municipal facilities are summarized below.

1. **State Highways**
   For facilities under the jurisdiction of the State, the “concept level of service” reported in Caltrans’ TCRs determines the minimum acceptable operating conditions. Implementation of General Plan 2030 would trigger a significant impact if it would:
   - Cause a facility currently operating at an acceptable level (based on the TCR) to deteriorate to an unacceptable level.
   - Produce an addition of ten or more trips during the PM peak hour to a facility that is already (and is forecasted to be) operating unacceptably.
2. **County Roadways**

For County roadways located outside of municipalities’ SOI areas, the level of service standard is LOS C during the PM peak hour. Implementation of General Plan 2030 would trigger a significant impact if it would:

- Cause a facility currently operating at LOS C or better to deteriorate to LOS D or worse during the PM peak hour.
- Produce an addition of ten or more trips during the PM peak hour to a facility that is already (and is forecasted to be) operating at LOS D or worse during the PM peak hour.

3. **Roadways within Municipalities and Their SOI Areas**

General Plan 2030 proposes a new level of service policy for Butte County for roadways within the incorporated municipalities and the municipalities’ SOI areas. For these roadways, the municipality’s level of service policy determines the minimum acceptable operating conditions. Implementation of General Plan 2030 would trigger a significant impact if it would:

- Cause a facility currently operating at an acceptable level to deteriorate to an unacceptable level, based on the municipality’s level of service policy.
- Produce an addition of ten or more trips during the PM peak hour to a facility that is already (and is forecasted to be) operating unacceptably.

To provide the most conservative analysis, LOS D is considered the minimum acceptable operating standard in Chico and Oroville.

**D. Impact Discussion**

This section describes how implementation of General Plan 2030 would influence Butte County’s roadway segment operations, as well as other aspects of transportation and circulation, including traffic hazards, emergency access, parking supply, alternative transportation modes, and air traffic. Implementation of the ALUCP override would have no transportation or circulation impact in Butte County, and is not discussed further in this section.
1. Project Impacts
   a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system. Specifically, cause a roadway facility to exceed, either individually or cumulatively, a level of service standard established by the State, County, or municipality that determines acceptable operations on that facility.

   The assessment of traffic increases in this section is a quantitative analysis of impacts resulting from the projected 2030 buildout of General Plan 2030. Many improvements are programmed and planned for the Butte County roadway system within the planning horizon. Most of these projects are identified in the BCAG 2008-2035 RTP for the 2008 to 2035 planning horizon, as discussed in Section A.2 above and summarized in Table 4.13-3.

   In addition to the improvements listed in BCAG’s 2008-2035 RTP, additional capacity enhancements are proposed in the General Plan 2030 Circulation Element to maintain established level of service policies on County roadway facilities and accommodate expected future growth. These improvements are summarized in Table 4.13-6.

   Figure 4.13-3 shows the Year 2030 transportation network in Butte County assuming that General Plan 2030 is adopted.7 The figure highlights planned improvements to the county’s transportation network, including those funded by the BCAG 2008-2035 RTP and those improvements proposed in

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7 Note: This map does not reflect unfunded roadway access improvements, including intersection enhancements and potential capital upgrades, identified in the General Plan Public Outreach Process. These facilities were not modeled in the EIR transportation impact analysis, since they are unfunded and/or would not contribute substantially to the County’s roadway capacity. This approach results in a more conservative analysis than if they had been modeled.
FUTURE TRANSPORTATION SYSTEM

FIGURE 4.13-3

Airports
Highways
Railroad
Roads

Sources: Butte County GIS, 2009; Fehr & Peers, 2009.

Improvements to Meet LOS Thresholds (Unfunded)
- Maintain as High-Capacity/Limited-Access Expressway
- Widen to 4 Lane
- Interchange/Intersection Improvement

RTP-Funded Roadway Improvements
- Auxiliary Lanes
- Passing Lanes
- Roadway Extension
- Widen to 4 Lanes
- Roadway Reconstruction

Inset for Chico Area
See Inset for Chico Area
### Table 4.13-6  ADDITIONAL IMPROVEMENTS INCLUDED IN GENERAL PLAN 2030 CIRCULATION ELEMENT TO MAINTAIN ROADWAY OPERATIONS

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Proposed Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Gridley Road</td>
<td>Widen to four lanes from Highway 99 to Highway 70.</td>
</tr>
<tr>
<td>Skyway</td>
<td>Maintain as a high capacity/limited access expressway by limiting additional access between Honey Run Road and Neal Road. Widen to four lanes from Pentz Road to Nimshew Road, which would include widening the Magalia Dam.</td>
</tr>
</tbody>
</table>


the General Plan 2030 Circulation Map to maintain level of service thresholds on County roadway facilities.

Fehr & Peers used the BCAG travel demand forecasting (TDF) model to analyze operations on key roadways in Butte County under the two future scenarios: Year 2030 Plus General Plan and Year 2030 No Project.

The Year 2030 No Project Conditions analysis provides an assessment of how roadway segment operations would be influenced if the existing Butte County General Plan were to remain in place and guide the county’s development through 2030 instead of the proposed General Plan 2030. As stated at the beginning of this chapter, the Year 2030 No Project Conditions roadway operations analysis is not used to evaluate impacts associated with implementation of General Plan 2030; these results are reported for informational and comparative purposes only.

Table 4.13-7 shows the PM peak hour volumes and level of service anticipated on key roadway segments under each scenario. It is worthwhile to note that the two scenarios vary in their assumptions about future roadway geometrics.
<table>
<thead>
<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Roadway Type</th>
<th>PM Volume</th>
<th>LOS</th>
<th>Roadway Type</th>
<th>PM Volume</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muir Ave. to East Ave.</td>
<td>Caltrans</td>
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<td>W. 1st St. to W. 5th St.</td>
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<td>Yosemite Dr. to Humboldt Rd. (Hog Springs)</td>
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<td>Major 2-Lane Highway</td>
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<td>4-Lane Arterial, Undivided</td>
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<td>Caltrans</td>
<td>4-Lane Arterial, Undivided</td>
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### Year 2030 Level of Service on Key Roadway Facilities (continued)

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<th>Roadway</th>
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<th>PM Volume</th>
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<th>Roadway Type</th>
<th>PM Volume</th>
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<td>Caltrans</td>
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<td>4-Lane Freeway</td>
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<td>4-Lane Arterial, Undivided</td>
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<td>East Biggs Hwy. to State Route 162 (East)</td>
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<td>State Route 162 (East) to State Route 149</td>
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<td>Durham - Pentz Rd to Skyway</td>
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<td>4-Lane, Multi-Lane Highway</td>
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<td>4-Lane, Multi-Lane Highway</td>
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<td>Skyway to East 20th St.</td>
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<td>4-Lane Freeway</td>
<td>5,620</td>
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## Table 4.13-7  Year 2030 Level of Service on Key Roadway Facilities (continued)

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<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Roadway Type</th>
<th>PM Volume</th>
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<th>Roadway Type</th>
<th>PM Volume</th>
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<td>East Ave. to Eaton Rd.</td>
<td>Caltrans 4-Lane Freeway</td>
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<td>4-Lane Freeway</td>
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<td>2,430</td>
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<td>State Route 149</td>
<td>State Route 70 to State Route 99</td>
<td>Caltrans</td>
<td>4-Lane Expressway</td>
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<td>4-Lane Expressway</td>
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<td>Glenn County line to State Route 99 (south intersect)</td>
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<td>2-Lane Arterial</td>
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<td>Hegan Lane to Durham-Dayton Hwy.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
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<td>Segment</td>
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<td>PM Volume</td>
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<td>Roadway Type</td>
<td>PM Volume</td>
<td>LOS</td>
</tr>
<tr>
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<td>Durham-Dayton Hwy.</td>
<td>Dayton Rd. to Midway</td>
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<td>2-Lane Arterial</td>
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<td>Midway to Stanford Lane</td>
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<td>2-Lane Arterial</td>
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<td>Stanford Lane to State Route 99</td>
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<td>2-Lane Arterial</td>
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<tr>
<td>Durham–Pentz Rd.</td>
<td>State Route 99 to State Route 191</td>
<td>Butte</td>
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<td>Butte</td>
<td>2-Lane Arterial</td>
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<td>2-Lane Arterial</td>
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<td>A-C</td>
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<td></td>
<td>State Route 99 to Cohasset Rd.</td>
<td>Chico</td>
<td>2-Lane Arterial and 4-Lane Arterial, Undivided</td>
<td>1,910</td>
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<td>2-Lane Arterial and 4-Lane Arterial, Undivided</td>
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<td></td>
<td>Cussick Ave. to Esplanade</td>
<td>Chico</td>
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<td>4-Lane Arterial, Divided</td>
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<tr>
<td></td>
<td>Esplanade to State Route 99</td>
<td>Chico</td>
<td>4-Lane Arterial, Divided</td>
<td>3,070</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>3,070</td>
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<tr>
<td>East Ave. – Manzanita Ave. – Bruce Ave.</td>
<td>State Route 99 to Cohasset Rd.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,030</td>
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<td>4-Lane Arterial, Undivided</td>
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<tr>
<td></td>
<td>Cohasset Rd. to Floral Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,090</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
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<td></td>
<td>Floral Ave. to Mariposa Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,390</td>
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<td>4-Lane Arterial, Undivided</td>
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<tr>
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<td>Mariposa Ave. to Marigold Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
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<td>Marigold Ave. to Manzanita Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
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<td>East Ave. to Vallombrosa Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
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<td>4-Lane Arterial, Undivided</td>
<td>1,860</td>
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<tr>
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<td>California Park Dr. to State Route 32</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
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<td>4-Lane Arterial, Undivided</td>
<td>2,270</td>
<td>D</td>
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<tr>
<td>East Gridley Rd.</td>
<td>State Route 99 to Larkin Rd.</td>
<td>Butte</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,090</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>1,130</td>
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<td>Larkin Rd. to State Route 70</td>
<td>Butte</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,090</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>1,130</td>
<td>D</td>
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</tbody>
</table>
## TABLE 4.13-7  YEAR 2030 LEVEL OF SERVICE ON KEY ROADWAY FACILITIES (CONTINUED)

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Roadway Type</th>
<th>PM Volume</th>
<th>LOS</th>
<th>Roadway Type</th>
<th>PM Volume</th>
<th>LOS</th>
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<tbody>
<tr>
<td>Eaton Rd.</td>
<td>Esplanade to State Route 99</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,770</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,810</td>
<td>D</td>
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<tr>
<td></td>
<td>State Route 99 to Hicks Lane</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,380</td>
<td>A-C</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,380</td>
<td>A-C</td>
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<tr>
<td></td>
<td>Hicks Lane to Cohasset Rd.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,220</td>
<td>A-C</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,240</td>
<td>A-C</td>
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<tr>
<td></td>
<td>State Route 99 to Garner Lane</td>
<td>Chico</td>
<td>2-Lane Arterial</td>
<td>140</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>140</td>
<td>A-C</td>
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<tr>
<td></td>
<td>Garner Lane to Eaton Rd.</td>
<td>Chico</td>
<td>2-Lane Arterial</td>
<td>890</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>870</td>
<td>A-C</td>
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<tr>
<td>Esplanade</td>
<td>Eaton Rd. to Lassen Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,450</td>
<td>A-C</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,470</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Lassen Ave. to East Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,240</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,270</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>East Ave. to Cohasset Rd.</td>
<td>Chico</td>
<td>4-Lane Arterial, Divided</td>
<td>2,280</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>2,310</td>
<td>D</td>
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<tr>
<td></td>
<td>Cohasset Rd. to E. 9th Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Divided</td>
<td>2,750</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>2,770</td>
<td>D</td>
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<tr>
<td></td>
<td>E. 9th Ave. to E. 1st Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Divided</td>
<td>2,270</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>2,280</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>E. 1st Ave. to Main St./Broadway</td>
<td>Chico</td>
<td>4-Lane Arterial, Divided</td>
<td>2,700</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>2,710</td>
<td>D</td>
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<tr>
<td>Main St. (NB)</td>
<td>Esplanade/E. 1st St. to 9th St.</td>
<td>Chico</td>
<td>3-Lane Arterial, One-Way Roadway</td>
<td>1,660</td>
<td>D</td>
<td>3-Lane Arterial, One-Way Roadway</td>
<td>1,670</td>
<td>D</td>
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<tr>
<td>Broadway (SB)</td>
<td>Esplanade/E. 1st St. to 9th St.</td>
<td>Chico</td>
<td>3-Lane Arterial, One-Way Roadway</td>
<td>1,200</td>
<td>A-C</td>
<td>3-Lane Arterial, One-Way Roadway</td>
<td>1,200</td>
<td>A-C</td>
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<tr>
<td>Park Ave.</td>
<td>E. 9th St. to 16th St.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,340</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,350</td>
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<tr>
<td></td>
<td>E. 16th St. to E. 20th St.</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,270</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,280</td>
<td>D</td>
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<tr>
<td></td>
<td>E. 20th St. to East Park Ave.</td>
<td>Chico</td>
<td>4-Lane Arterial, Divided</td>
<td>1,790</td>
<td>A-C</td>
<td>4-Lane Arterial, Divided</td>
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<tr>
<td>E. Park Ave.</td>
<td>Park Ave. to State Route 99</td>
<td>Chico</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,290</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>2,270</td>
<td>D</td>
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</table>
### TABLE 4.13-7  YEAR 2030 LEVEL OF SERVICE ON KEY ROADWAY FACILITIES (CONTINUED)

<table>
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<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Roadway Type</th>
<th>PM Volume</th>
<th>LOS</th>
<th>Roadway Type</th>
<th>PM Volume</th>
<th>LOS</th>
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</thead>
<tbody>
<tr>
<td>Forbestown Rd.</td>
<td>State Route 162 to Lumpkin Rd.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>680</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>340</td>
<td>A-C</td>
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<tr>
<td>Dayton Rd. to S.P.</td>
<td>Railroad tracks</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>410</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>400</td>
<td>A-C</td>
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<tr>
<td>S.P. Railroad tracks</td>
<td>to Midway</td>
<td>Chico/Chico SOI</td>
<td>2-Lane Arterial</td>
<td>490</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>490</td>
<td>A-C</td>
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<tr>
<td>Hegan Lane</td>
<td>Skyway to Centerville Rd.</td>
<td>Butte</td>
<td>Major 2-Lane Collector</td>
<td>540</td>
<td>A-C</td>
<td>Major 2-Lane Collector</td>
<td>180</td>
<td>A-C</td>
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<tr>
<td>Centerville Rd.</td>
<td>Honey Run Rd. to Nimshew Rd.</td>
<td>Butte</td>
<td>Major 2-Lane Collector</td>
<td>110</td>
<td>A-C</td>
<td>Major 2-Lane Collector</td>
<td>110</td>
<td>A-C</td>
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<td>Nimshew Rd.</td>
<td>Centerville to Skyway</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>70</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>60</td>
<td>A-C</td>
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<tr>
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<td>State Route 162 to E. Hamilton Rd.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>510</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>530</td>
<td>A-C</td>
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<td>E. Hamilton Rd. to</td>
<td>East Biggs Hwy.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>150</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>160</td>
<td>A-C</td>
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<tr>
<td>East Biggs Hwy. to E.</td>
<td>Gridley Hwy.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>90</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>100</td>
<td>A-C</td>
</tr>
<tr>
<td>E. Gridley Hwy. to</td>
<td>E. Evans Reimer Rd.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>620</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>560</td>
<td>A-C</td>
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<tr>
<td>Lincoln Blvd.</td>
<td>State Route 162 to Marysville Baggett Rd.</td>
<td>Oroville/</td>
<td>4-Lane Arterial, Divided</td>
<td>1,980</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
<td>2,040</td>
<td>D</td>
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<tr>
<td>Marysville Baggett Rd.</td>
<td>to Monte Vista Ave.</td>
<td>Oroville SOI</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,800</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
<td>1,760</td>
<td>D</td>
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<tr>
<td>Monte Vista Ave. to</td>
<td>Ophir Rd.</td>
<td>Oroville SOI</td>
<td>2-Lane Arterial</td>
<td>1,250</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>1,270</td>
<td>D</td>
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<tr>
<td>Ophir Rd. to Palermo Rd.</td>
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<td>Oroville SOI/Butte</td>
<td>2-Lane Arterial</td>
<td>1,140</td>
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<td>2-Lane Arterial</td>
<td>930</td>
<td>A-C</td>
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<tr>
<td>Lower Honcut Rd.</td>
<td>State Route 70 to Palermo Honcut Hwy.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
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<td>A-C</td>
<td>2-Lane Arterial</td>
<td>60</td>
<td>A-C</td>
</tr>
<tr>
<td>Palermo Honcut Hwy. to</td>
<td>LaPorte Rd.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>60</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>60</td>
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### Table 4.13-7  Year 2030 Level of Service on Key Roadway Facilities (continued)

<table>
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<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Roadway Type</th>
<th>PM Volume</th>
<th>LOS</th>
<th>Roadway Type</th>
<th>PM Volume</th>
<th>LOS</th>
</tr>
</thead>
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<tr>
<td>LaPorte Rd.</td>
<td>Lower Honcut Rd. to Oro-Bangor Hwy.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>110</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>110</td>
<td>A-C</td>
</tr>
<tr>
<td>Lower Wyandotte Rd.</td>
<td>State Route 162 to Oro-Bangor Hwy.</td>
<td>Oroville/ Oroville SOI</td>
<td>2-Lane Arterial</td>
<td>930</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>970</td>
<td>A-C</td>
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<tr>
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<td>Oro-Bangor Hwy. to Ophir Rd.</td>
<td>Oroville SOI</td>
<td>2-Lane Arterial</td>
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<td>Oroville SOI/Butte</td>
<td>2-Lane Arterial</td>
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<td>A-C</td>
<td>2-Lane Arterial</td>
<td>980</td>
<td>D</td>
</tr>
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<td>Upper Palermo Rd.</td>
<td>Ophir Rd. to Palermo Rd.</td>
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<td>2-Lane Arterial</td>
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<tr>
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<td>Palermo Rd. to Lower Honcut Rd.</td>
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<tr>
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<td>East Park Ave. to Hegan Lane</td>
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<td>4-Lane Arterial, Undivided</td>
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<td>2-Lane Arterial</td>
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<td>Southgate Extension to Durham-Dayton Road</td>
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<td>2-Lane Arterial</td>
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<td>Montgomery St.</td>
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<td>1,010</td>
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<td>Lincoln Blvd. to Table Mountain Blvd.</td>
<td>Oroville</td>
<td>2-Lane Arterial</td>
<td>1,230</td>
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<td>2-Lane Arterial</td>
<td>1,200</td>
<td>D</td>
</tr>
<tr>
<td>Orovile - Bangor Hwy.</td>
<td>Lincoln Blvd. to Lower Wyandotte Rd.</td>
<td>Orovile</td>
<td>2-Lane Arterial</td>
<td>290</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>480</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Lower Wyandotte Rd. to Foothill Blvd.</td>
<td>Orovile</td>
<td>2-Lane Arterial</td>
<td>320</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>410</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Foothill Blvd. to Swedes Flat Rd.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>230</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>280</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>S/O Swedes Flat Rd.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>200</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>190</td>
<td>A-C</td>
</tr>
<tr>
<td>Palermo Rd.</td>
<td>Upper Palermo Rd. to Lincoln Blvd.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>140</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>460</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>Lincoln Blvd. to Lone Tree Rd.</td>
<td>Butte</td>
<td>2-Lane Arterial</td>
<td>150</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>220</td>
<td>A-C</td>
</tr>
</tbody>
</table>
### Table 4.13-7 Year 2030 Level of Service on Key Roadway Facilities (continued)

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Roadway Type</th>
<th>Year 2030 Plus General Plan</th>
<th>Year 2030 No Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>PM Volume</td>
<td>LOS</td>
<td>Roadway Type</td>
</tr>
<tr>
<td>Lone Tree Rd. to State Route 70</td>
<td>Butte 2-Lane Arterial</td>
<td>200</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>230</td>
</tr>
<tr>
<td>Pentz Rd.</td>
<td>State Route 70 to Messilla Valley Rd.</td>
<td>Butte 2-Lane Arterial</td>
<td>380</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
</tr>
<tr>
<td></td>
<td>Messilla Valley Rd. to Malibu Dr.</td>
<td>Butte 2-Lane Arterial</td>
<td>640</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
</tr>
<tr>
<td></td>
<td>State Route 99 to Notre Dame Blvd.</td>
<td>Chico 4-Lane Arterial, Divided</td>
<td>3,140</td>
<td>F</td>
<td>4-Lane Arterial, Divided</td>
</tr>
<tr>
<td></td>
<td>Notre Dame Blvd. to Bruce Rd.</td>
<td>Chico 4-Lane Arterial, Divided</td>
<td>2,210</td>
<td>D</td>
<td>4-Lane Arterial, Divided</td>
</tr>
<tr>
<td></td>
<td>Bruce Rd. to Honey Run Rd.</td>
<td>Chico 4-Lane Highway, Undivided</td>
<td>3,410</td>
<td>A-C</td>
<td>4-Lane Highway, Undivided</td>
</tr>
<tr>
<td></td>
<td>Honey Run Rd. to Neal Rd.</td>
<td>Butte 4-Lane High Cap/Limited Access Expwy</td>
<td>3,240</td>
<td>A-C</td>
<td>4-Lane High Cap/Limited Access Expwy</td>
</tr>
<tr>
<td></td>
<td>Neal Rd. to Pearson Rd.</td>
<td>Paradise 4-Lane, Multi-Lane Highway</td>
<td>3,300</td>
<td>E</td>
<td>4-Lane, Multi-Lane Highway</td>
</tr>
<tr>
<td></td>
<td>Pearson Rd. to Bille Rd.</td>
<td>Paradise 4-Lane Arterial, Undivided</td>
<td>2,250</td>
<td>D</td>
<td>4-Lane Arterial, Undivided</td>
</tr>
<tr>
<td></td>
<td>Bille Rd. to Wagstaff Rd.</td>
<td>Paradise 2-Lane Arterial</td>
<td>1,810</td>
<td>E</td>
<td>2-Lane Arterial</td>
</tr>
<tr>
<td></td>
<td>Wagstaff Rd. to Clark Rd.</td>
<td>Paradise 2-Lane Arterial</td>
<td>1,010</td>
<td>D</td>
<td>2-Lane Arterial</td>
</tr>
<tr>
<td></td>
<td>Clark Rd. to Pentz Rd</td>
<td>Paradise 2-Lane Arterial</td>
<td>1,480</td>
<td>D</td>
<td>2-Lane Arterial</td>
</tr>
<tr>
<td></td>
<td>Pentz Rd. to S. Park Rd.</td>
<td>Butte 4-Lane Arterial, Undivided</td>
<td>1,610</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
</tr>
<tr>
<td></td>
<td>South Park Rd. to Nimshew Rd</td>
<td>Butte 4-Lane Arterial, Undivided</td>
<td>1,070</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
</tr>
<tr>
<td></td>
<td>Nimshew Rd. to Lovelock Rd.</td>
<td>Butte 2-Lane Arterial</td>
<td>210</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
</tr>
<tr>
<td></td>
<td>Lovelock Rd. to Powellton Rd.</td>
<td>Butte 2-Lane Arterial</td>
<td>110</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
</tr>
<tr>
<td></td>
<td>Montgomery St. to County Center Dr.</td>
<td>Oroville 2-Lane Arterial</td>
<td>1,650</td>
<td>D</td>
<td>2-Lane Arterial</td>
</tr>
<tr>
<td></td>
<td>County Center Dr. to Garden Drive</td>
<td>Oroville 2-Lane Arterial</td>
<td>1,240</td>
<td>D</td>
<td>2-Lane Arterial</td>
</tr>
</tbody>
</table>
### Table 4.13-7  YEAR 2030 LEVEL OF SERVICE ON KEY ROADWAY FACILITIES (CONTINUED)

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Roadway Type</th>
<th>PM Volume</th>
<th>LOS</th>
<th>Roadway Type</th>
<th>PM Volume</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophir Rd.</td>
<td>East of Feather River Blvd.</td>
<td>Oroville/ Oroville SOI</td>
<td>2-Lane Arterial</td>
<td>1,160</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>1,160</td>
<td>D</td>
</tr>
<tr>
<td>Pacific Heights Rd.</td>
<td>North of Palermo Rd.</td>
<td>Oroville</td>
<td>2-Lane Arterial</td>
<td>180</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>300</td>
<td>A-C</td>
</tr>
<tr>
<td></td>
<td>South of Ophir Rd.</td>
<td>Oroville</td>
<td>2-Lane Arterial</td>
<td>1,120</td>
<td>D</td>
<td>2-Lane Arterial</td>
<td>780</td>
<td>A-C</td>
</tr>
<tr>
<td>Foothill Blvd.</td>
<td>South of State Route 162 to Lower Wyandotte Rd.</td>
<td>Oroville/ Oroville SOI</td>
<td>2-Lane Arterial</td>
<td>710</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>830</td>
<td>A-C</td>
</tr>
<tr>
<td>Miners Ranch Rd.</td>
<td>South of State Route 162 to Oro-Bangor Highway</td>
<td>Oroville SOI/Butte</td>
<td>2-Lane Arterial</td>
<td>350</td>
<td>A-C</td>
<td>2-Lane Arterial</td>
<td>260</td>
<td>A-C</td>
</tr>
</tbody>
</table>

Note: **Bold/Shading** – Segment operates at an unacceptable level of service.
and the distribution of development throughout the county.\(^8\) The roadway segments that operate unacceptably, according to their respective jurisdiction, are bolded. Note that Table 4.13-7 does not include mitigation for roadway segments that operate unacceptably; mitigation is addressed in Section F of this chapter.

Under Year 2030 Plus General Plan Projected Buildout Conditions, 25 roadway segments would operate unacceptably during the PM peak hour based on the level of service standard established by the applicable State, County, or incorporated municipality jurisdiction; this is compared to 13 segments under existing conditions. These impacted roadway segments under Year 2030 Plus General Plan Projected Buildout Conditions are shown on Figure 4.13-4 and include:

- State Route 32 between Muir Avenue and W. 1st Street (three segments) – LOS F
- State Route 99 between the Sutter County Line and East Biggs Highway (three segments) – LOS F
- State Route 99 between State Route 149 and Skyway (two segments) – LOS F
- State Route 99 between East 20th Street and Cohasset Road (two segments) – LOS F
- State Route 99 between Eaton Road and Keefer Road (one segment) – LOS F
- State Route 162 from Larkin Road to Lower Wyandotte Road (five segments) – LOS E/F

\(^8\) The 2030 No Project Scenario assumes that the BCAG 2008-2035 RTP improvements are in place, but not the additional General Plan 2030 improvements shown in Table 4.13-6. The land use distribution pattern assumed under the 2030 No Project Scenario is described in the No Project Alternative discussion in Chapter 5, Alternatives.
FIGURE 4.13-4
YEAR 2030 PLUS GENERAL PLAN DEFICIENT ROADWAY SEGMENTS

Sources: Butte County GIS, 2009; Fehr & Peers, 2009.
Because General Plan 2030 would cause these 26 roadway segments to operate unacceptably, the proposed project would result in a significant impact.

By comparison, the Year 2030 No Project Conditions would have similar roadway segment impacts to the Year 2030 Plus General Plan Projected Buildout Conditions, but with a few exceptions. A total of 28 roadway segments would operate unacceptably during the PM peak hour, including the following deficiencies that would not occur under the 2030 Plus General Plan Projected Buildout Conditions scenario: two segments of East Gridley Road between State Route 99 and State Route 70 (LOS D), and two segments of the Skyway, from Pentz Road to Nimshew Road north of the Town of Paradise (LOS D). In addition, one segment that was impacted under Year 2030 Plus General Plan Projected Buildout Conditions that would not be impacted under Year 2030 No Project Conditions is State Route 162 between Foothill Boulevard and Canyon Way. However, as noted above, these results are reported for informational purposes only and are not used to evaluate impacts of the proposed project.

b. Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment).

The assessment of transportation and circulation hazards in this section is based on a spatial analysis of the location of development that would be al-
lowed by implementation of General Plan 2030. While General Plan 2030 would allow increased development in the county relative to existing levels and would increase traffic volumes, General Plan 2030 includes policies to minimize traffic hazards. In particular, Circulation Element Policy CIR-P6.3 requires that project approval be conditioned on the provision of roadway improvements to meet the County’s level of service standards. Exceptions to satisfying the level of service standards and/or constructing transportation facilities to the County’s design standards may be allowed on a case-by-case basis where reducing level of service or not constructing a transportation facility to County standards would result in a clear public benefit, such as conserving agricultural or open space land, enhancing the agricultural economy, protecting scenic roadways or highways, or preserving downtown community environments. In addition, Policy CIR-P6.5 requires that street improvements within the SOI of an incorporated municipality conform to the street standards of that municipality, and Policy CIR-P6.6 requires that major new development projects and subdivisions prepare and implement traffic studies to assess and mitigate adverse impacts to local and regional transportation facilities.

Implementation of the policies in General Plan 2030 would make this impact less than significant.

c. Result in inadequate emergency access.

The assessment of emergency in this section is based on a spatial analysis of the location of development that would be allowed by implementation of General Plan 2030. While General Plan 2030 would allow increased development in the county relative to existing levels, which would increase traffic volumes, General Plan 2030 includes policies that support maintaining sufficient emergency access. Circulation Element Policy CIR-P2.7 requires that the width of existing streets be reduced where feasible and appropriate, and where non-motorized travel is reasonably expected through the use of bulbouts, medians, pedestrian islands, and similar methods, and through planting shade streets in landscaped areas within and adjacent to streets, while not jeopardizing emergency response and future capacity requirements. In
addition, Policy CIR-P9.1 requires that all new public and private road systems provide for safe evacuation of residents and adequate access to fire and other emergency services by providing at least two means of emergency access to an interconnected collector system.

Moreover, General Plan 2030 includes a number of policies outside of the Circulation Element which seek to maintain adequate emergency access. The Health and Safety Element limits development that increases risks of floods, dam/levee failure, and fire hazards. Specifically relating to emergency access issues, Health and Safety Element Policy HS-P2.4 prohibits development that would create difficult emergency vehicle access in times of flood. In addition, Policy HS-P11.3 states the County’s on-going support for hazard mitigation plans prepared by the California Department of Forestry and Fire Protection. Policy HS-P11.4 requires new development to meet current fire safety standards for adequate emergency vehicle access, signage, and evacuation routes. Policy HS-P13.1 requires new development in High or Very High Fire Hazard Zones to identify access and egress routes and to improve or contribute to the development, upgrade, and maintenance of these routes. Policy HS-P15.3 states that emergency access routes shall be kept free of traffic impediments, and Policy HS-P15.4 states that streets and developed properties shall be clearly marked to enable easy identification.

Implementation of the policies in General Plan 2030 would make this impact less than significant.

d. Result in inadequate parking capacity.
The assessment of parking in this section is based on a spatial analysis of the location of development that would be allowed by implementation of General Plan 2030. While General Plan 2030 would allow increased development in the county relative to existing levels, which would increase traffic volumes and thus demand for parking, General Plan 2030 includes a number of policies that support the provision of adequate parking supply. Policy CIR-P2.1 encourages carpooling by providing additional pickup and park-and-ride locations near transit centers and at freeway interchanges. Policy CIR-P2.2 en-
courages trip reduction among County employees by providing subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting, work-at-home programs, employee education, and preferential parking for carpool/vanpool, and Policy CIR-P2.4 encourages non-County employers to provide the same programs. Policy CIR-P2.4 encourages trip reduction among County employees by providing subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting, work-at-home programs, employee education, and preferential parking for carpool/vanpool, and Policy CIR-P2.4 encourages non-County employers to provide the same programs. Policy CIR-P5.3 directs the County to integrate the bicycle system with other transportation modes by connecting bicycle routes and transit stops, providing secure bicycle parking facilities, and supporting efforts to expand accommodation of bicycles aboard buses. Policy CIR-P5.7 requires that owners of apartment complexes and major commercial, office, industrial, and educational sites provide safe, plentiful, and centrally located bicycle parking facilities. Policy CIR-P5.8 requires that all County facilities and park-and-ride lots provide appropriate bicycle amenities, including bicycle racks and storage facilities.

In addition, General Plan 2030’s overall support for alternative transportation modes, as summarized Section D.2.e, may help reduce future demand for parking facilities.

Implementation of the policies in General Plan 2030 would make this impact less than significant.

e. Conflict with adopted policies, plans, or programs supporting alternative transportation.

The assessment of alternative transportation in this section is based on a spatial analysis of the location of development that would be allowed by implementation of General Plan 2030. While implementation of General Plan 2030 could potentially affect the number of people desiring to access alternative transportation modes and thereby affect transit operations, General Plan 2030 includes a number of policies that support the provision of alternative transportation modes and that support adopted polices, plans, and programs for alternative modes. As discussed in Section D.2.d, Policies CIR-P2.1, CIR-P2.2, and CIR-P2.4 support trip reduction, transit subsidies, and other programs, and Policies CIR-P5.3, CIR-P5.7, and CIR-P5.8 support bicycle parking and integration of the bicycle system with other transportation modes.
In addition, Policy CIR-P2.5 preserves transportation corridors for new transit lines. Policy CIR-P2.6 directs the County to incorporate “Complete Streets” policies that are designed and built to be safe for all users, including bicycles, pedestrians, and transit users. Policy CIR-P3.1 supports improved connections to other regional transportation services and to connect Butte County communities with each other. Policy CIR-P3.2 requires that a safe, continuous, integrated, and accessible pedestrian network be provided in urbanized areas. Policy CIR-P3.3 requires that travel modes be interconnected to form an integrated, coordinated, and balanced multi-modal transportation system. Policies CIR-P3.4, CIR-P3.5, and CIR-P3.6 require that new development consider provisions for alternative modes of transportation and pedestrian, bicycle, and multi-use facilities. Policy CIR-P3.9 requires that public facilities be located and designed to allow for convenient access from public transit and/or bicycle and pedestrian facilities.

Policies under Goal CIR-4 promote a balanced and integrated public transit system. Specifically, Policy CIR-P4.6 requires that new development in areas served by existing or planned transit provide fixed transit facilities such as bus shelters and pullouts, according to expected demand. In addition, Policy CIR-P4.1 supports public transit as a viable and attractive alternative to the use of single occupant motor vehicles, and Policy CIR-P4.2 supports improved public transit service. Policy CIR-P4.3 supports public transportation programs that promote access to shopping, employment, education, healthcare, and recreation. Policy CIR-P4.4 encourages BCAG to provide shuttles from local transit stations to special event centers. Policy CIR-P4.5 supports local Amtrak passenger services.

Finally, policies under Goal CIR-5 aim to provide a safe, continuous, integrated, and accessible bicycle system. Policy CIR-P5.1 directs the County to develop bicycle facilities in accordance with the County’s adopted Bicycle Master Plan. Policy CIR-P5.2 requires that new bicycle routes and paths create a safe bicycle environment. Policy CIR-P5.4 encourages transportation service providers to incorporate bicycle storage facilities into bus stops and rail stations. Policy CIR-P5.5 requires that construction or expansion of ma-
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Major arterials incorporate Class II bicycle facilities whenever feasible and consider Class III Bike routes where appropriate. Policy CIR-P5.6 requires that residential developments incorporate internal circulation networks that encourage bicycle use and that connect to the external bicycle circulation system.

Implementation of the policies in General Plan 2030 would make this impact less than significant.

f. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

The assessment of air traffic patterns in this section is based on a spatial analysis of the location of development that would be allowed by implementation of General Plan 2030. Implementation of General Plan 2030 would increase the number of people living and working in the county, thus air travel levels could increase relative to existing levels. General Plan 2030 includes policies aimed at ensuring that future increases in air travel levels do not result in substantial safety risks to air facilities. In particular, Policy CIR-P11.1 requires that private airstrips and landing fields be located outside of flight paths to and from existing airports so that they do not present a hazard or annoyance to neighboring areas. In addition, Land Use Element Policy LU-P12.5 directs the County to consider the ALUCP in General Plan and zoning decisions, and be consistent with it where appropriate.

Implementation of the policies in General Plan 2030 would make this impact less than significant.

2. Cumulative Impacts

The project-level traffic analysis in Section D.2 above addresses cumulative impacts to the transportation network in Butte County, since the land uses in the BCAG model were modified to reflect General Plan 2030 and cumulative development anticipated in each of Butte County’s municipalities and their sphere of influence areas. In addition, the BCAG TDF model accounts for development in surrounding counties by adjusting external travel factors (ex-
ternal station weights). The external travel factor for each of the 20 external connections to the surrounding counties was adjusted based on the growth rate of the neighboring county, as forecasted by the California Department of Finance. In addition, the BCAG model accounts for growth in through-traffic (i.e., traffic that travels through the county without stopping) based on the change in traffic from the Caltrans Tri-County TDF model.

Within the horizon of General Plan 2030, the number of Butte County residents commuting to jobs in Yuba City, Marysville, Lincoln, and Roseville could increase as the number of job-generating uses in these communities increases. Segments of State Routes 70, 99, and 65 are already experiencing severe peak hour congestion. Although some improvements, such as the Lincoln bypass, are planned, full funding for these improvements is not guaranteed. Increased traffic resulting from development in Butte County would exacerbate existing deficiencies along State Routes 65, 70, and 99. Because mitigation for these deficiencies is not identified, the cumulative impact to regional roadways is considered significant and unavoidable.

E. Maximum Theoretical Buildout

Under the maximum theoretical buildout of General Plan 2030, there would be significantly more development than under the projected 2030 buildout analyzed in Section D, in terms of both the amount and the extent of development. As a result, transportation-related impacts would be more significant. However, as discussed in Chapter 3, it is unlikely that maximum theoretical buildout would ever occur under General Plan 2030, and an analysis of maximum theoretical buildout is not required by CEQA.

F. Impacts and Mitigations

Impact TRAF-1: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 32 between Muir Avenue and W. 1st Street.
Mitigation Measure TRAF-1: Widen State Route 32 to four lanes through this section.

Secondary Effects: Mitigation Measure TRAF-1 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

Significance After Mitigation: Construction of this improvement would mitigate the impact on this segment. However, since this is a State facility and the County cannot guarantee its implementation, this impact remains significant and unavoidable.

Impact TRAF-2: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 99 between the Sutter County Line and East Biggs Highway.

Mitigation Measure TRAF-2: Widen and convert State Route 99 to a four-lane conventional highway through this section.

Secondary Effects: Mitigation Measure TRAF-2 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

Significance After Mitigation: Construction of this improvement would mitigate the impact on this segment. However, since this is a State facility and the County cannot guarantee its implementation, this impact remains significant and unavoidable.

Impact TRAF-3: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 99 between State Route 149 and the Skyway.
Mitigation Measure TRAF-3: Convert State Route 99 to a grade separated, limited access freeway facility though this section.

**Secondary Effects:** Mitigation Measure TRAF-3 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

**Significance After Mitigation:** Construction of this improvement would mitigate the impact on this segment. However, since this is a State facility and the County cannot guarantee its implementation, this impact remains *significant and unavoidable*.

**Impact TRAF-4:** Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 99 between East 20th Street and Cohasset Road.

**Mitigation Measure TRAF-4:** Widen State Route 99 to six lanes through this section.

**Secondary Effects:** Mitigation Measure TRAF-4 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

**Significance After Mitigation:** Construction of this improvement would mitigate the impact on this segment. However, since this is a State facility and the County cannot guarantee its implementation, this impact remains *significant and unavoidable*.

**Impact TRAF-5:** Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 99 between Eaton Road and Keefer Road.
Mitigation Measure TRAF-5: Widen State Route 99 to four lanes through this section.

Secondary Effects: Mitigation Measure TRAF-5 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

Significance After Mitigation: Construction of this improvement would mitigate the impact on this segment. However, since this is a State facility and the County cannot guarantee its implementation, this impact remains significant and unavoidable.

Impact TRAF-6: Implementation of General Plan 2030 would lead to unacceptable LOS E operations on State Route 162 between Larkin Road and State Route 70.

Mitigation Measure TRAF-6: Widen State Route 162 to four lanes through this section.

Secondary Effects: Mitigation Measure TRAF-6 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

Significance After Mitigation: Construction of this improvement would mitigate the impact on this segment. However, since this is a State facility and the County cannot guarantee its implementation, this impact remains significant and unavoidable.

Impact TRAF-7: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on State Route 162 between State Route 70 and Lower Wyandotte Road.
Mitigation Measure TRAF-7: Widen State Route 162 to six lanes through this section.

Secondary Effects: Mitigation Measure TRAF-7 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

Significance After Mitigation: Construction of this improvement would mitigate the impact on this segment. However, since this is in the City of Oroville and is a State facility, and the County cannot guarantee its implementation, this impact remains significant and unavoidable.

Impact TRAF-8: Implementation of General Plan 2030 would lead to unacceptable LOS E operations on State Route 162 between Foothill Boulevard and Canyon Drive.

Mitigation Measure TRAF-8: Widen State Route 162 to four lanes through this section.

Secondary Effects: Mitigation Measure TRAF-8 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

Significance After Mitigation: Construction of this improvement would mitigate the impact on this segment. However, since this is a State facility and the County cannot guarantee its implementation, this impact remains significant and unavoidable.

Impact TRAF-9: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on Cohasset Road between State Route 99 and East Avenue.
Mitigation Measure TRAF-9: Construct a raised median on this roadway section to enhance capacity.

Secondary Effects: Mitigation Measure TRAF-9 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

Significance After Mitigation: Construction of this improvement would mitigate the impact on this segment. However, since this is a City of Chico facility and the County cannot guarantee its implementation, this impact remains significant and unavoidable.

Impact TRAF-10: Implementation of General Plan 2030 would lead to unacceptable LOS D operations on Midway between the planned Southgate Extension and Durham-Dayton Road.

Mitigation Measure TRAF-10: Widen Midway to four lanes though this section.

Secondary Effects: Mitigation Measure TRAF-10 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

Significance After Mitigation: Construction of this improvement would mitigate the impact on this segment. However, given the environmental constraints that exist in this location and the County’s desire to maintain this roadway as a two-lane rural facility, this impact remains significant and unavoidable.

Impact TRAF-11: Implementation of General Plan 2030 would lead to unacceptable LOS F operations on the Skyway between State Route 99 and Notre Dame Boulevard.
Mitigation Measure TRAF-11: Construct a raised median on this roadway section to enhance capacity.

Secondary Effects: Mitigation Measure TRAF-11 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

Significance After Mitigation: Construction of this improvement would mitigate the impact on this segment. However, since this is a City of Chico facility and the County cannot guarantee its implementation, this impact remains significant and unavoidable.

Impact TRAF-12: Implementation of General Plan 2030 would lead to unacceptable LOS D/E operations on the Skyway between Neal Road and Bille Road.

Mitigation Measure TRAF-12: Convert this section of the Skyway to a four-lane limited access expressway.

Secondary Effects: Mitigation Measure TRAF-12 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

Significance After Mitigation: Construction of this improvement would mitigate the impact on this segment. However, since this is a Town of Paradise facility and is not compatible with the Town’s plans for this facility, the County cannot guarantee its implementation and the impact remains significant and unavoidable.

Impact TRAF-13: Implementation of General Plan 2030 would lead to unacceptable LOS D/E operations on the Skyway between Bille Road and Pentz Road.
Mitigation Measure TRAF-13: Widen the section of the Skyway between Bille Road and Wagstaff Road to a four-lane, divided arterial, and widen the section of the Skyway from Wagstaff Road to Pentz Road to a four-lane, undivided arterial.

Secondary Effects: Mitigation Measure TRAF-13 could cause significant secondary environmental impacts. These secondary environmental impacts would be reviewed under CEQA as further planning occurs and before individual projects are implemented.

Significance After Mitigation: Construction of this improvement would mitigate the impact on this segment. However, since this is a Town of Paradise facility, the County cannot guarantee its implementation and the impact remains significant and unavoidable.

Impact TRAF-14: Implementation of General Plan 2030 would cause increased traffic that would exacerbate existing deficiencies along regional roadways, contributing to a cumulatively significant transportation impact.

Because mitigation for these deficiencies is not identified and would be outside the control of Butte County, the impact is considered significant and unavoidable.
This chapter describes the existing water, wastewater, stormwater, solid waste, and energy service in unincorporated Butte County and discusses potential impacts associated with the projected 2030 buildout of General Plan 2030. This section is based on a quantitative analysis, although it also considers the spatial distribution of anticipated population growth across utilities districts. Implementation of the Airport Land Use Compatibility Plan (ALUCP) override would have no utilities impact in Butte County, and is not discussed further in this chapter.

Storm drainage systems and groundwater are addressed below as well as in Section 4.8, Hydrology and Water Quality.

A. Water

This section describes applicable regulations, current conditions, and potential impacts of the proposed General Plan 2030 with regard to the provision of water in Butte County.

1. Regulatory Framework

This section summarizes key federal and State agencies and regulations that govern water service in Butte County.

a. Federal and State Regulatory Agencies

The US Environmental Protection Agency (EPA) is the federal agency assigned to maintain safe water throughout the country. Butte County is in EPA Region 9, which includes Arizona, California, Hawaii, Nevada, the Pacific Islands, and over 140 Tribal Nations.

The California Department of Public Health (CDPH) Drinking Water Program (DWP)\(^1\) is within the Division of Drinking Water and Environmental Management. The DWP regulates public water systems; certifies drinking

water treatment and distribution operators; supports and promotes water system security; provides support for small water systems and for improving technical, managerial, and financial capacity; and provides funding opportunities for water system improvements. The Field Operations Branch of the DWP is responsible for the enforcement of the federal and California Safe Drinking Water Acts and the regulatory oversight of approximately 7,500 public water systems to assure the delivery of safe drinking water to all Californians. In this capacity, Field Operations Branch staff perform field inspections, issue operating permits, review plans and specifications for new facilities, take enforcement actions for non-compliance with laws and regulations, review water quality monitoring results, and support and promote water system security.

The California State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) are responsible for controlling water pollution sources to protect the State’s surface waters and ground waters for all beneficial uses, including domestic and municipal water supply uses.

The California Department of Water Resources (DWR) is responsible for the overall management of California’s water resources. DWR oversees regulation of water service availability, including Senate Bills (SB) 610 and 221 and the California Urban Water Management Planning Act, as described below.

b. Federal and State Regulations

There following are federal and State regulations that affect water service in Butte County.

i. **Federal Safe Drinking Water Act**

The Safe Drinking Water Act authorizes the EPA to set national standards for drinking water, called the National Primary Drinking Water Regulations, to protect against both naturally-occurring and man-made contaminants. These standards set enforceable maximum contaminant levels in drinking water and require all water providers in the United States to treat water to
remove contaminants, except for private wells serving fewer than 25 people. In California, the State Department of Health Services conducts most enforcement activities. If a water system does not meet standards, it is the water supplier’s responsibility to notify its customers.

**ii. California Porter-Cologne Water Quality Control Act**

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne), which was passed in California in 1969, the SWRCB has the ultimate authority over State water rights and water quality policy. Porter-Cologne also establishes nine RWQCBs to oversee water quality on a day-to-day basis at the local and regional level. RWQCBs engage in a number of water quality functions in their respective regions. RWQCBs regulate all pollutant or nuisance discharges that may affect either surface water or groundwater. Butte County is overseen by the Central Valley RWQCB.

**iii. California Senate Bills 610 and 221**

SB 610 and SB 221 amended State law to ensure better coordination between local water supply and land use decisions, and ensure adequate water supply for new development. Both statutes require that detailed information regarding water availability be provided to City and County decision-makers prior to approval of large development projects.

**iv. California Urban Water Management Planning Act**

Through the Urban Water Management Planning Act of 1983, the California Water Code requires all urban water suppliers within California to prepare and adopt an Urban Water Management Plan (UWMP) and update it every five years. This requirement applies to all suppliers providing water to more

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than 3,000 customers or supplying more than 3,000 acre-feet\(^4\) of water annually. The Act is intended to support conservation and efficient use of urban water supplies at the local level. The Act requires that total projected water use be compared to water supply sources over the next 20 years in five year increments, that planning occur for single and multiple dry water years, and that plans include a water recycling analysis that incorporates a description of the wastewater collection and treatment system within the agency’s service area along with current and potential recycled water uses.\(^5\)

v. *California Groundwater Management Act*

The Groundwater Management Act of the California Water Code (AB 3030) provides guidance for applicable local agencies to develop a voluntary Groundwater Management Plan (GMP) in State-designated groundwater basins. GMPs can allow agencies to raise revenue to pay for measures influencing the management of the basin, including extraction, recharge, conveyance, facilities’ maintenance and water quality.\(^6\)

2. **Existing Conditions**

This section describes existing water sources and water providers in Butte County.

a. **Water Sources**

Butte County lies entirely within the Sacramento River watershed. Primary waterways include the Feather River with its several branches, as well as Butte Creek and Big Chico Creek. The majority of the surface water supply used by Butte County residents and businesses originates in the Feather River

\(^4\) One acre-foot is the amount of water required to cover 1 acre of ground (43,560 square feet) to a depth of 1-foot.


watershed, accumulates in Lake Oroville, and is primarily used for agriculture locally. By volume, surface water provides 69 percent of the county’s water needs. Based on 2000 data, the Butte County water demand is approximately 90 percent agricultural, followed by wildlife at 5 percent and residential at 5 percent.

Annual runoff in the region averages about 22.4 million acre-feet (MAF), which is nearly one-third of the State’s total natural runoff. Major water supplies in the region are provided through surface storage reservoirs. Annually, municipal, industrial, and agricultural water usage in the region is about 8 MAF, with about 5.5 MAF coming from surface water sources, and groundwater providing about 2.5 MAF. A substantial portion of the remainder of the total runoff goes to dedicated natural flows, including in-stream fishery flows and flushing flows in the Delta.

Approximately 75 percent of the residential water supply is extracted from groundwater basins. The availability of groundwater in an area depends largely upon its geologic, hydrologic, and climatic conditions. In Butte County, reserves of groundwater are found in the thick sedimentary deposits of the Sacramento Valley and the mountainous areas to the east and north. Groundwater is found in perched, unconfined and confined zones in the valley portion of Butte County. Perched groundwater zones are most common in shallow, consolidated soils with low permeability. Major portions of groundwater are unconfined or semi-confined, occurring in floodplain and alluvial fan deposits. High permeability in these soils yields large amounts of water to shallow domestic irrigation wells. The Tuscan Formation contains an important deep aquifer that is theorized to underlie most of the valley area. Confined water occurs in the Tuscan and Laguna Formations, and the younger alluvium, where it is overlain by flood basin deposits. The highest producing well in alluvial uplands occurs when Older Alluvium or the deeper Tuscan volcanic rocks are tapped. Groundwater can also be found in more limited amounts in mountainous areas of the county within volcanic, metamorphic, and granitic rock with a total volume of water stored estimated to less than 2 percent of the rock volume.
b. Water Service Providers
Butte County is served by the following water service providers, all of which are reviewed in the discussion below and in Table 4.14-1. A map showing the respective service area boundaries is provided in Figure 4.14-1. Note that a small portion of the Ramirez Water District is shown along the southern boundary of Butte County; however, no discussion of this Water District is provided since more than 95 percent of the District lies within Yuba County to the south. Also, the Cities of Biggs and Gridley provide water service to properties located within their respective city limits. However, since neither of these cities supply water to unincorporated areas of Butte County, they are not discussed further in this section.

i. Buzztail Community Services District
Buzztail Water was deeded to Butte County and management of the water district was turned over to Buzztail Community Service District (CSD) in 1994. The District supply comes from a single well. Due to infrastructure limitations in the system, there are no plans to expand the system. Any further expansion of the system would require substantial improvements.8

ii. California Water Service Company, Chico
The California Water Service Company, Chico (Cal Water Chico) is a private company that serves some areas of unincorporated Butte County as well as the City of Chico. Cal Water Chico pumps groundwater at 69 active wells. The Cal Water system also includes seven storage tanks with a combined capacity of approximately 2,375 million gallons of water. Water supplied by Cal Water Chico is used solely for urban purposes.

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7 Unless otherwise noted, the information presented is from Butte LAFCO, June 1, 2006, Final Municipal Service Review – Domestic Water and Wastewater Providers, prepared by Quad Knopf.
### Table 4.14-1 Water Supplier Overview

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^a Purchase from PG&E; no limit established.
^b Treatment provided by PID.
^c Surface water supply only; total groundwater supplies not known.
^d Expansion to 10 mgd is under construction; future expansion to 20 mgd planned for 2015.
^e Information not available.

Figure 4.14-1

WATER PROVIDERS AND SERVICE AREA BOUNDARIES

Source: Butte County GIS, 2009.
iii. California Water Service Company, Oroville
The California Water Service Company, Oroville (Cal Water Oroville) is a private water supplier. Cal Water Oroville provides water within the Oroville city limits, except in areas served by other Oroville water suppliers, including the Thermalito Water and Sewer District and South Feather Water and Power Agency, both of which area discussed below. Only a very small portion of the service area, the southwest corner, lies outside the city limits. The average water quantity supplied by the company is 4,850 acre-feet/year (AFY), which comes from four wells plus surface water from the west branch of the Feather River that is purchased from PG&E. The peak daily use is approximately 6.3 million gallons per day (mgd). The average daily use during high demand is 5.5 mgd. Cal Water Oroville has two reservoirs and two storage tanks, providing a total of 7.209 million gallons of storage. All of the water that Cal Water Oroville provides is dedicated to urban retail use.9

iv. Gran Mutual Water Company
The Gran Mutual Water Company supplies domestic and fire protection water for the existing Skansen Estates, Spanish Gardens, and Rocky Bluffs subdivisions located east of Chico along the Skyway. The water company obtains its supply from two wells with an estimated production capacity of 650 gallons per minute (gpm). Water storage is provided in two tanks with a combined volume of 190,000 gallons. The existing service area includes approximately 75 single family residences, two commercial connections, and two homeowner association connections for landscape irrigation.10

v. Lake Madrone Water District
The Lake Madrone Water District provides service to 15 year-round residents in the Lake Madrone area, which is principally a vacation and recreation community. Water supply is obtained from two wells, with a third inactive well

in reserve. The combined capacity of the two active wells is approximately 160,000 gallons per day (gpd). Average daily demand is approximately 25,000 gpd. The District has several water tanks with a combined storage capacity of 145,000 gallons.

**vi. Del Oro Water Company**
The Del Oro Water Company serves the unincorporated urban areas around the Town of Paradise. The Del Oro Water Company has four separate service districts: Lime Saddle, Magalia, Paradise Pines, and Stirling Bluffs. The water supply includes a combination of well water and surface water diversion. Surface water is treated by Paradise Irrigation District and Del Oro facilities for use in the various districts. Each of these service districts is described below:

1. **Lime Saddle District**
The Lime Saddle District is approximately 4.3 square miles and provides service to approximately 265 customers, primarily residential uses utilizing approximately 200 AFY. Lime Saddle has three wells and also receives water from the Del Oro Water Company’s Stirling Bluffs Service District and the Paradise Irrigation District.

In 2007, Butte County approved an interconnection between Lake Oroville and the Lime Saddle District, connecting to the Paradise Irrigation District. When constructed, this project will provide an additional water supply of 200 AFY. The pipeline can carry substantially more capacity if/when additional water supply is secured.\(^{13}\)

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\(^{11}\) Carvalho, Jennifer, Director of Community Relations, Del Oro Water Company, personal email communication with Carl Nelson, Questa Engineering, May 18, 2007.


b) Magalia District
The Magalia District serves approximately 258 customers, primarily residential connections. Magalia has two wells. In addition, Magalia receives supplemental water from the Paradise Pines Service District during the off-peak periods and from the Stirling Bluffs Service District, via the Paradise Irrigation District, during peak periods.

c) Paradise Pines District
The Paradise Pines District has six active wells; the newest was added in 2005. In addition to local groundwater, Paradise Pines receives surface water from the Stirling Bluffs Service District. The District has 4,440 metered connections and 562 additional services, primarily single-family residential dwellings.

d) Stirling Bluffs District
The Stirling Bluffs District serves approximately 160 residential connections and has 23 inactive service connections. The District has a contract to receive up to 365 AFY of water from PG&E through the Hendrick Canal.

vii. Durham Irrigation District
The Durham Irrigation District provides domestic water services in an area south of Chico. Distribution, testing and maintenance operations are currently contracted out to Cal Water Chico. The District’s water comes from three wells. These have a maximum pumping capacity of approximately 4.176 mgd. Although water supply has generally been adequate over the years, the water table has been subject to lowering during drought periods. Water in the system currently meets all State and federal drinking water standards.

viii. South Feather Water and Power Agency
The South Feather Water and Power Agency district encompasses 38,320 acres. The Agency has six reservoirs, which store runoff water collected from the South Fork of the Feather River and from Slate Creek, a tributary of the North Fork of the Yuba River. The Agency’s primary treatment plant is
located at the Miners Ranch Reservoir and has the capacity to treat 14.5 mgd. Supplied water is used for agricultural, residential, and commercial purposes.

ix. **Paradise Irrigation District**
The Paradise Irrigation District (PID) serves municipal, residential, and commercial customers in the Town of Paradise, and additional surrounding areas immediately adjacent to the town. The primary source of water is surface water from the Little Butte Creek watershed stored in two reservoirs with a total capacity of 12,293 acre-feet. The water system includes 169 miles of transmission and distribution pipelines and a 22.8-mgd treatment plant constructed in 1994. Treated water in the District is used for both agricultural and domestic purposes. Approximately 6 percent of the District’s water is used to irrigate area orchards.

x. **Thermalito Water and Sewer District**
The Thermalito Water and Sewer District (TWSD) delivers potable water to a combination of residential, industrial, and governmental users. TWSD has rights to 8,200 AFY and obtains its surface water from the Concow Reservoir. The water enters the West Branch of the Feather River through Concow Creek, then is released from Oroville Dam and delivered to the District through the Thermalito Power Canal. TWSD also has five groundwater wells that are used as a backup water source. Currently, the District delivers approximately 2,800 AFY of water.

c. **Agricultural Water Suppliers**
Following is a brief summary of the agricultural water suppliers in Butte County.\(^{14}\) These agricultural water suppliers are also summarized in Table 4.14-1 and shown in Figure 4.14-1.

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\(^{14}\) The information in this section is based on the *Butte County Water Inventory and Analysis Report*, March 30, 2001, prepared by Camp Dresser & McKee for Butte County Department of Water and Resource Conservation.
i. **Biggs-West Gridley Water District**
The Biggs-West Gridley Water District covers 32,000 acres and provides water for irrigated agriculture and managed wetland uses, including the Gray Lodge Wildlife Area, which is partially within the District boundaries. The District obtains its water from surface water diversions, and has an annual entitlement of 161,000 AFY, plus a recapture system that provides approximately 25,000 AFY.

ii. **Butte Water District**
The Butte Water District provides irrigation water to approximately 18,000 acres of agricultural land in the Gridley and East Biggs area. The water supply is obtained from the Thermalito Afterbay, and totals approximately 100,000 AFY per year.

iii. **Dayton Mutual Water Company**
The Dayton Mutual Water Company provides surface water to meet the area’s agricultural water needs. Dayton Mutual has water rights to Butte Creek and the West Branch of the Feather River, diverted through Butte Creek, totaling 19.334 cubic feet per second (cfs).

iv. **Durham Mutual Water Company**
The Durham Mutual Water Company provides surface water for agricultural uses from Butte Creek, diverted at Durham Mutual Dam. The Water Company is part of the Butte Creek adjudication, and has first priority rights to 44.7 cfs.

v. **Richvale Irrigation District**
The Richvale Irrigation District serves an area of approximately 33,000 acres and has riparian water rights on Little Dry Creek for 18.3 thousand acre-feet (TAF) that can only be used during the period between April and September. It also receives 150 TAF pursuant to pre-1914 water rights.15 Some ground-

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15 Prior to 1914, there was no comprehensive permit system available to establish appropriative water rights in California, and the establishment of such a right required simply posting and recording a notice of intended diversion and the construc-
water pumping occurs to supplement surface water during the initial flooding of rice fields, but there are no estimates of the quantity.

vi. Western Canal Water District
The Western Canal Water District encompasses a land area of approximately 58,000 irrigable acres in both Butte and Glenn Counties, the majority being in Butte County. The supply is obtained from the Thermalito Afterbay, with a maximum diversion of 1,250 cfs. The pre-1914 surface water rights comprise 150 TAF of natural flow from the Feather River and 140 TAF from Lake Almanor. The District also has rights to 11.4 TAF from Butte Creek, which can only be diverted during the period between April 15 and June 15. Approximately 7 TAF of groundwater are also pumped by landowners in the District to supplement surface supplies.

3. Standards of Significance
General Plan 2030 would have a significant impact with regard to water service if it would:

♦ Have insufficient water supplies available to serve the project from existing and identified entitlements and resources.

♦ Require or result in the construction of new water facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

4. Impact Discussion
The following discussion provides an analysis of potential project and cumulative water service impacts that could occur as a result of the projected 2030 buildout of General Plan 2030.

In 1914, a comprehensive permit system was established in California and all new appropriative uses subsequent to that year require application to the SWRCB. Post-1914 applicants must demonstrate to the SWRCB the availability of un-appropriated water and the ability to put it to a beneficial use. As California adheres to the “first in time, first in right” rule, a pre-1914 right will have priority over a post-1914 right.
a. Project Impacts
i. Have insufficient water supplies available to serve the project from existing and identified entitlements and resources.

General Plan 2030 would allow new construction that would increase the demand for water supplies. Many of the water suppliers in the county have sufficient supplies to meet the demands of existing and projected 2030 development in their respective service areas; however, some do not. Following is a review of the status for each of the major water suppliers in the county. Unless otherwise noted, capacity information is based on information contained in the Butte County LAFCO Final Municipal Service Review. Water demand is estimated using the following factors: 0.33 AFY per connection, 0.2 gpd per square foot for retail/office uses, and 0.1 gpd per square foot for industrial uses.

a) Buzztail Community Services District
The Buzztail Community Services District has sufficient groundwater supplies for existing uses, but is lacking redundant capacity. Projected 2030 buildout under General Plan 2030 is estimated to add 50 new dwelling units and 100 residents, which would more than double the service area population. The estimated water demand associated with this additional growth would be approximately 17 AFY. The existing water system does not have defined

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16 Butte LAFCO, June 1, 2006, Final Municipal Service Review – Domestic Water and Wastewater Providers, prepared by Quad Knopf.
18 Retail/Office use of 0.2 gpd/ft² estimated based on 30 gpd per employee and one employee per 150 ft² of developed space. 30 gpd per employee is equal to twice the unit wastewater flow factor per employee as contained in Butte County sewage disposal regulations. As a general industry guideline, average sewage generation is approximately 50 percent of water demand. Lacking any details on projected landscaping plans and other water uses activities associated with retail uses, wastewater generation related to employee estimates provides the best means of estimating potential water demand.
19 Industrial use of 0.1 gpd/ft² estimated based on 30 gpd per employee and one employee per 300 ft² of developed space. See also the previous footnote.
water supplies to meet this projected demand, and no studies have been completed to determine the feasibility and level of water supply expansion that would be required.

b) California Water Service Company, Chico
Cal Water Chico has sufficient water supplies to meet existing water demands and a portion of the projected future demand. Development allowed by General Plan 2030 is projected to increase the population by 1,350 people in 2030, and add 550 dwelling units, 37,600 square feet of retail and office development and 421,700 square feet of industrial development. The future water demand from this growth in the service area is estimated to be 237 AFY, which would exceed the groundwater pumping supply sometime before 2020.

c) California Water Service Company, Oroville
Cal Water Oroville has sufficient water capacity of 10.74 mgd for its existing service area in the Oroville urban area, which has maximum demand of approximately 6.3 mgd. Development allowed by General Plan 2030 is projected to increase the population by 2,350 people in 2030 and add 950 dwelling units, 11,200 square feet of retail and office development, and 5,500 square feet of industrial development. The future water demand from this growth is anticipated to be 317 AFY. It is estimated that the water demands associated with this growth, plus the growth anticipated within the City of Oroville, would approach the water system supply around the year 2025. Existing supplies may be insufficient to meet the demand from the 2030 growth projections; however, additional water supplies are available for purchase from PG&E.

d) Gran Mutual Water Company
The Gran Mutual Water Company has sufficient water supplies from two production wells for existing customers and the remaining buildout of properties in its service area. No new residential, retail/office or industrial development is projected by 2030 within the service area of this water company.
e) Lake Madrone Water District
The Lake Madrone Water District has sufficient water well production capacity to meet existing demands. Development allowed by General Plan 2030 is projected to increase retail and office uses by 400 square feet in 2030, which would cause an increase in demand of 80 gpd, an insignificant amount that can be accommodated by the existing supplies.

f) Del Oro Water Company
The Del Oro Water Company currently purchases water from PID to make up shortfalls in supply. However, the Company has obtained approval for a pipeline project to provide an additional 200 AFY from Lake Oroville; this acquisition is dependent on purchasing an additional 200 AFY from Lake Oroville. This additional water is estimated to be sufficient to supply up to 600 residential connections, at 0.33 AFY per connection.\textsuperscript{20} Development allowed by General Plan 2030 is projected to add 500 new dwelling units and 130,200 square feet of retail and office development by 2030 within the Del Oro Water Company service area. The estimated water demand associated with this additional growth would be approximately 195 AFY, or roughly equal to the projected available new supply, 200 AFY, once the intertie project is constructed.

g) Durham Irrigation District
The Durham Irrigation District has more than sufficient water supplies for existing and projected 2030 growth. The District supply of 4.2 mgd is more than ten times the current water demand of about 0.39 mgd. General Plan 2030 is projected to result in approximately 100 new dwelling units within this District. This additional growth would demand approximately 33 AFY, which would be well within the capacity of the existing supplies.

h) South Feather River Water and Power Agency
The South Feather River Water and Power Agency has water rights for 51,000 AFY compared with existing demands of about 7,000 AFY for potable

and 21,000 AFY for agricultural use. Development allowed by General Plan 2030 is projected to increase the service area population by 14,700 people through the addition of 5,950 dwelling units by 2030, and add about 300,000 square feet of retail and office development and about 150,000 square feet of industrial development by 2030. This additional growth would demand approximately 2,048 AFY, which is still within the available water supply of the Agency.

i) Paradise Irrigation District
PID has sufficient supplies to meet existing water demands during normal and wet rainfall years, but not during periods of drought. The District will require additional supplies to accommodate projected growth in the Town of Paradise. However, since no new residential, retail/office or industrial development is projected within the unincorporated area of this District by 2030, General Plan 2030 would not impact the water supply needs of this District.

j) Thermalito Water and Sewer District
TWSD has water rights for the diversion of 8,200 AFY, compared with existing water demands of approximately 2,800 AFY. Two-thirds of TWSD’s customers are in the unincorporated county area, with the remainder in the City of Oroville. Development allowed by General Plan 2030 is projected to increase the unincorporated service area population by 1,100 people through the addition of 450 dwelling units by 2030, and add 655,200 square feet of retail and office development by 2030. This additional growth would demand approximately 296 AFY, which is within the available water supply entitlement of the TWSD. Additional growth in the City of Oroville could also be accommodated by the TWSD’s available supply.

k) Agricultural Water Suppliers
Development allowed by General Plan 2030 is projected to increase the population by 2,800 people by 2030 in the areas of several agricultural water suppliers, including the Biggs-West Gridley Water District, Butte Water District, Dayton Mutual Water Company, Durham Mutual Water Company, Richvale Irrigation District, and Western Canal Water District. None of these water
suppliers currently provide water for domestic or municipal uses. Therefore, projected water demands for development in these areas would need to be supplied either by individual water wells or changes to these existing water supply systems. The capacity of these agricultural water suppliers to deliver potable water for residential uses is unknown.

Residents and businesses in the agricultural areas of the county obtain their domestic water supplies from wells; future residents in these areas would be expected to do the same. While it would be physically and technically possible for any of the irrigation districts to implement changes in their facilities and operations to provide water for domestic uses, the source of water, water rights limitations and distribution costs would have a significant effect on the feasibility of making such changes. The area covered by these agricultural water suppliers in the county totals over 150,000 acres. The projected population increase of 2,800 people for this area represents an average density of less than one person per 50 acres. In general, water treatment and distribution costs would make it prohibitively expensive for the existing irrigation districts to provide potable water to such a dispersed and rural population. The only reasonable potential for irrigation water supplies to be converted to potable supplies would be for moderate to high-density development where the treatment and distribution infrastructure costs are absorbed as part of the development, which is not projected in General Plan 2030 for the agricultural areas of the county.

With respect to agricultural water use, according to the Butte County Inventory and Analysis,\textsuperscript{21} the county is estimated to have an adequate supply of surface water and groundwater to meet current agricultural demands. Additionally, the Butte County Inventory and Analysis evaluated several scenarios for future agricultural water use, considering the individual and combined effects of: (a) agricultural land conversion; (b) increased crop prices; (c) increased crop idling; and (d) conservation. The agricultural demand forecast

analysis concluded that the most reasonably foreseeable changes would not result in significant changes in agricultural water demand, and the combined effect of the above noted factors could result in reduction in water demands ranging from 0.6 to 8.75 percent in different regions of the county. In addition, as indicated in Section 4.2, Agriculture, the land available for agriculture is expected to decrease somewhat overall as a result of the proposed project. Therefore, it is reasonable to conclude that there is no significant risk that future irrigation water demand would exceed the available supplies.

I) Impact Significance Determination
The proposed General Plan 2030 Water Resources Element includes goals, policies, and actions that address the need for comprehensive planning and management of water supplies in the county to meet water demands of future growth. Action W-A2.1 commits the County to implementing and updating the Integrated Water Management Plan to ensure the sustainability of water resources within the county. Policy W-P2.6 supports water development projects that are needed to supply local demands, and Policy W-P2.5 encourages the expansion of public water systems to areas identified for future development on the General Plan land use map. Policy W-P2.2 promotes continued regional cooperation surrounding water issues; however, Butte County users should be prioritized for Butte County water supplies, according to Policy W-P2.4 and W-P2.8, which support the full utilization of the County’s State Water Project allocation within the county and Area of Origin water rights. Policy W-P2.9 requires applications for new development to demonstrate adequate water supply to meet the needs of the project. Policy W-P3.1 requires sustainable management of groundwater resources. Goal W-4 and the eight policies that follow encourage water conservation, drought-tolerant landscaping, and use of reclaimed wastewater.

The goals, policies, and actions listed above will help to preserve and extend the availability of water resources in the county for the benefit of current and future uses, and will help to minimize the amount of new water capacity development that may be needed to meet future 2030 growth. In addition, these goals, policies, and actions would ensure the appropriate planning and timely
implementation of new and expanded water supply capacity to serve future anticipated growth in the county as it occurs. Therefore, implementation of General Plan 2030 would have a less-than-significant impact on water supply.

ii. Require or result in the construction of new water facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

General Plan 2030 would allow development that would likely require new and/or expanded water supply facilities. Based on the projected 2030 buildout, water districts estimated to require expansion of water supply, treatment and/or storage facilities to meet the increased demand include:

♦ Buzztail Community Services District
♦ Cal Water Chico
♦ Cal Water Oroville
♦ Del Oro Water Company
♦ Thermalito Irrigation District

Any of the water suppliers may also undertake water facility improvements to extend water distribution lines, increase system reliability, replace existing facilities or potentially to comply with changes in water system requirements.

Water facilities may include, for example, wells, canals, reservoirs, water tanks, water treatment facilities, and pipelines. Impacts from the construction of new or expanded water facilities would be project-specific. A generic summary of the types of potential impacts associated with water supply facilities is provided in Table 4.14-2. Any new or expanded water facilities projects would require permitting and review in accordance with CEQA, which would ensure that any environmental impacts are disclosed and mitigated to the extent possible.

The proposed General Plan 2030 Water Resources Element includes the following policies and actions that either directly address the mitigation of potential environmental impacts of new and expanded water facilities, or would facilitate the timely identification, review, and avoidance of potential adverse
### Table 4.14-2 Potential Environmental Impacts from New Water Supply Projects and Related Infrastructure

<table>
<thead>
<tr>
<th>Types of Potentially Affected Resources</th>
<th>Possible Impacts Unless New or Expanded Facilities are Carefully Planned and Executed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water Hydrology</td>
<td>Changes in the magnitude and timing of flows in affected streams; changes in the level of affected reservoirs and lakes.</td>
</tr>
<tr>
<td>Geology and Soils</td>
<td>Increase in erosion and sedimentation from construction activities; change in sediment transport in streams; geologic hazards could cause problems for new facilities and their operators if they are not sited carefully.</td>
</tr>
<tr>
<td>Water Quality</td>
<td>Changes in stream and reservoir/lake temperature, dissolved oxygen, turbidity, total suspended solids and other water quality parameters of concern during construction and operation of new facilities.</td>
</tr>
<tr>
<td>Fishery Resources including Special-status Species</td>
<td>Change in the amount and quality of fishery habitat in affected streams and reservoirs/lakes and potential fish entrainment at possible diversion sites in lakes and streams.</td>
</tr>
<tr>
<td>Wetlands and Riparian Habitat</td>
<td>Changes in the amount or functions and values of various types of wetlands from the construction of new facilities, or in riparian areas from changes in the operation of reservoir/lakes and changes in stream flows. Riparian habitat could be affected by hydrology changes or new construction and is especially important habitat for wildlife and botanical species.</td>
</tr>
<tr>
<td>Botanical Resources including Special-status Species</td>
<td>Disturbance to rare plants and their habitat and other types of vegetation from construction activities or changes in hydrology along streams and at reservoirs and lakes.</td>
</tr>
<tr>
<td>Wildlife Resources including Special-status Species</td>
<td>Changes in the amount and quality of wildlife habitat near affected reservoir/lakes, and streams and where appurtenant facilities would be located.</td>
</tr>
<tr>
<td>Recreation</td>
<td>Changes in the quantity or quality of recreation opportunities, including fishing, boating, hiking, and whitewater rafting in affected reservoirs/lakes and streams; some impacts could also occur during construction and operation of new conveyance, treatment, storage, and pumping facilities.</td>
</tr>
<tr>
<td>Types of Potentially Affected Resources</td>
<td>Possible Impacts Unless New or Expanded Facilities are Carefully Planned and Executed</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Visual Resources</td>
<td>The addition of new project facilities could affect the visual environment. New pipelines, pumping stations, or transmission lines near or in residential areas or highly visited areas could cause negative impacts.</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Some irrigated land or grazing land could be taken out of production where project conveyance facilities need to be located and to accommodate growth.</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>Historic, prehistoric, and ethnographic resources could be affected by hydrology changes or the construction and maintenance of new facilities.</td>
</tr>
<tr>
<td>Compatibility with Existing Land Uses and Other Policies and Plans</td>
<td>Some new project facilities may not be compatible with surrounding land uses, or may be inconsistent with related federal, State, tribal, and local plans and policies (including those of the US Forest Service, US Fish and Wildlife Service, and California Department of Fish and Game).</td>
</tr>
<tr>
<td>Mineral Resources</td>
<td>New project facilities could interfere with the extraction of minerals at known or yet-to-be discovered mineral sites.</td>
</tr>
<tr>
<td>Public Utilities</td>
<td>The routing and siting of new project facilities could interfere with the operation or maintenance of existing or planned public utilities, including communication and energy infrastructure.</td>
</tr>
<tr>
<td>Socioeconomic Resources</td>
<td>Customers of the water purveyors and others would enjoy the socioeconomic benefits associated with a more reliable water supply and related economic growth. Water rates would likely increase to help pay for new facilities. Facility construction would cause short-term and beneficial employment and income impacts. Energy or mineral impacts would also cause related socioeconomic effects.</td>
</tr>
</tbody>
</table>
impacts. To minimize the potential for detrimental affects to the environment as a result of new water infrastructure to accommodate growth allowed by General Plan 2030, Action W-A1.2 requires the County to develop domestic well standards and programs to ensure that groundwater resources are protected, and Action W-A3.2 calls for the County to develop standards to preserve groundwater recharge and protect groundwater quality.

The policies and actions listed above would help to minimize significant environmental effects resulting from the construction of new water facilities or expansion of existing facilities. In addition, these policies and actions would ensure that the appropriate planning occurs prior to development in order to limit the potential for subsidence and to limit development in established groundwater recharge zones. As specific projects, including water system improvements, are identified, additional project-specific environmental analysis would be completed pursuant to CEQA. Consequently, implementation of General Plan 2030 would have a less-than-significant impact on the environment resulting from the construction of water infrastructure.
b. Cumulative Impacts
There is a possibility that growth in other areas within the region could impact regional water supplies. The regional water supplies at risk would be the large supply of groundwater located within the permeable soils of the Sacramento Valley floor. If new development were to penetrate that supply, a water shortage could potentially develop. However, the Integrated Water Resource Plan revised in 2008 indicates that currently, there is no water supply shortfall during normal years, but that shortages occur during dry conditions in specific areas. Drought period shortages are concentrated in the southwestern portion of the county, where supply is limited by groundwater fluctuations during drier summer months, heavier agricultural use, and the geology of the aquifer.

The General Plan 2030 Water Resources Element addresses cooperation with regional water users to protect Butte County’s water resources. General Plan Policy W-P2.2 requires the County to continue the Four-County Memorandum of Understanding (MOU) with Colusa, Glenn, Tehama, and Sutter Counties, and foster regional cooperation with other counties and water purveyors. The MOU will serve to protect the region’s water supply as the region experiences increasing growth and development pressure. Therefore, implementation of General Plan 2030 would result in a less-than-significant cumulative impact to water supplies.

5. Impacts and Mitigation Measures
Since there are no significant impacts related to water supplies and water facilities as a result of General Plan 2030, no mitigation measures are required.

B. Wastewater

This section describes applicable regulations, current conditions, and potential impacts of the proposed General Plan 2030 with regard to the provision of wastewater service in Butte County.
1. Regulatory Framework
This section summarizes existing federal, State, and local agencies, policies and regulations that apply to wastewater services analyzed in this section.

a. Federal and State Agencies and Regulations
The following are federal and State agencies and regulations that affect wastewater services in Butte County.

i. Central Valley Regional Water Quality Control Board
As noted in section A.1.b.ii, above, Butte County is overseen by the Central Valley RWQCB. The RWQCB oversees water quality and regulates all pollutant or nuisance discharges that may affect either surface water or groundwater, including wastewater discharges.22

Throughout California, the RWQCB regulatory activities are guided by water quality control plans, called Basin Plans, which set forth the State’s water quality standards (i.e. beneficial uses of surface waters and groundwater) and the objectives or criteria necessary to protect those beneficial uses. The Basin Plan for the Sacramento Valley Region is the master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in Butte County. Any party conducting an activity that could discharge waste into waters of the State must meet formal waste discharge requirements (WDRs) consistent with the Basin Plan, which are discussed further in Section B.1.a.ii. The RWQCB utilizes the WDRs to set specific standards for treatment and discharge of wastes, and monitoring programs for on-going documentation of compliance with the adopted requirements.

ii. Statewide General Waste Discharge Requirements
On May 2, 2006, the SWRCB adopted Order #2006-0003-DWQ, the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems

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(WDRs). Under this Order, publicly-owned sanitary sewer systems that are comprised of more than 1 mile of pipes or sewer lines must develop and implement a Sanitary Sewer Management Plan (SSMP). The WDRs are intended to provide a regulatory framework designed to ultimately reduce the number and severity of sanitary sewer overflows from publicly-owned sewer systems.

b. Local Regulations
Butte County requirements governing the design and installation of on-site wastewater treatment systems are comprised of a combination of ordinances and policy documents that are described in this section.

i. Butte County On-site Wastewater Regulations
On-site wastewater treatment systems in Butte County generally fall under the local jurisdictional authority of the Butte County Public Health Department, Environmental Health Division. The only exception is in the Town of Paradise, where on-site systems have been regulated by the Town since 1992 with the formation of the Paradise On-site Wastewater Management Zone. On-site systems located within the incorporated areas of Chico and Oroville are regulated by the County under agreements with these Cities. The County and the Town of Paradise are required to conduct their local regulatory programs in accordance with the RWQCB Basin Plan Guidelines and related requirements identified by specific written agreements. For large on-site systems, defined as those that treat over 2,500 gpd, and community systems, the RWQCB has direct oversight and permitting responsibility, unless they choose to waive that authority, which can be done on a case-by-case basis.

ii. Butte County Code Chapter 19
Chapter 19 of the Butte County Code establishes the permitting requirements and guidelines for sewage disposal within the county. Supplementing the Chapter 19 framework is a series of policy and guideline documents establishing design and construction requirements for septic systems. These requirements include bedroom definition specifications, disposal field sizing, siting
and design requirements, septic tank sizing, inspection requirements, and materials requirements.

iii. Butte County Code Appendix VII – Subdivisions
Appendix VII of the Butte County Code, which was revised on January 20, 1987, supplements the County regulations by establishing requirements for subdivisions. These requirements are significantly more restrictive than the design requirements of Chapter 19 and its supporting policy documents. Appendix VII defines the minimum usable lot areas for subdivisions where septic tanks and leachfields are to be used.

iv. Nitrate Compliance Plan
In the 1980s, the RWQCB recognized that on-site systems were contributing to elevated nitrate levels in groundwater in the Chico area. In response, the RWQCB initially issued a Prohibition Order requiring all existing septic systems in the Chico Urban Area to convert to community sewer. Butte County, working with the City of Chico and the RWQCB, developed strict standards limiting any new systems, requiring creation of an On-Site District, and developing a plan to finance the conversion of thousands of existing septic systems to city sewer connections. This is known as the Nitrate Compliance Plan, which was adopted by the Board of Supervisors in 2001.

v. Proposed Individual On-Site Wastewater Ordinance
Butte County is currently in the process of updating and replacing existing County regulations governing individual on-site wastewater systems. Notably, the proposed ordinance would: (a) implement 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. The Draft EIR for the proposed on-site wastewater ordinance was issued for public review in mid-August 2009. As of the publication of this Draft EIR, certification of the on-site wastewater ordinance EIR and adoption of the new ordinance is expected to occur in spring 2010.
2. Existing Conditions

Wastewater service in Butte County is provided by a combination of public sewer systems and individual on-site wastewater treatment and dispersal systems (i.e. septic systems). Public sewer systems fall into two main categories: municipal systems and community systems.

a. Municipal Wastewater Systems

Municipal wastewater treatment plants are used to serve the sanitary sewer needs of major population areas. Typically, these systems are operated by cities or local sewage agencies under permits from the RWQCB.

There are currently five municipal wastewater treatment plants in Butte County, including facilities located in the Biggs, Chico, Gridley, Richvale, and Oroville areas. All of the municipal systems are owned and operated by independent agencies, either cities or special districts. Information concerning the capacity, treatment, and disposal methods in use at these facilities, as well as any known issues, is summarized in Table 4.14-3. Information in Table 4.14-3 is based on: the 2007 Setting and Trends Report; the Butte LAFCO Municipal Service Review for Domestic Water and Wastewater Service Providers, dated February 2006; and interviews of agency, Butte County, and RWQCB staff by members of the General Plan 2030 EIR team. Additional discussion of each of the municipal wastewater systems that provide service to unincorporated areas of the county is provided below. The Cities of Biggs and Gridley provide wastewater service only to properties within their respective incorporated areas and are not discussed further in this section.

i. City of Chico

The City of Chico provides sanitary sewer service for a population of approximately 75,000 people in the Chico urban area, including some unincorporated areas of the county within the Nitrate Compliance Plan area. The treatment plant is an activated sludge system, with a design capacity of

\[23 \text{ Unless otherwise noted, information presented is from Butte County LAFCO, February 2006, Municipal Service Review - Domestic Water and Wastewater Services.}\]
## Municipal Wastewater Treatment Systems

<table>
<thead>
<tr>
<th>Community</th>
<th>Treatment Method</th>
<th>Disposal Method</th>
<th>Permitted Capacity (mgd)(^b)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Biggs</td>
<td>Aerated Lagoons</td>
<td>Surface Discharge</td>
<td>0.37</td>
<td>Problems with disinfection system (chlorine), inflow and infiltration in collection system, and flow recordation.</td>
</tr>
<tr>
<td>City of Chico</td>
<td>Activated Sludge</td>
<td>Surface Discharge</td>
<td>6.5</td>
<td>Two-phased expansion, to 12 mgd and 15 mgd, planned to accommodate growth in City of Chico and septic conversions in Nitrate Compliance Plan area. Improvement to industrial pretreatment program necessary.</td>
</tr>
<tr>
<td>City of Gridley</td>
<td>Aerated Lagoons</td>
<td>Evaporation/Percolation Ponds</td>
<td>1.05</td>
<td>Approaching permit capacity.</td>
</tr>
<tr>
<td>Richvale Sanitary District</td>
<td>Primary Settling</td>
<td>Evaporation Ponds</td>
<td>0.03</td>
<td>Cease and desist order issued by RWQCB due to excessive infiltration and inflow. Sewer systems improvements in process.</td>
</tr>
<tr>
<td>Sewerage Commission – Oroville Region(^a) (City of Oroville, TWSD, LOAPUD)</td>
<td>Activated Sludge</td>
<td>Surface Discharge</td>
<td>6.5</td>
<td>Industrial pretreatment program approved by RWQCB in 2000; history of inflow and infiltration problems (responsibility of collection system agencies).</td>
</tr>
</tbody>
</table>

\(^a\) SCOR provides wastewater treatment for the City of Oroville, LOAPUD, and TWSD under a Joint Powers Agreement.  
\(^b\) mgd = million gallons per day.
9.0 mgd, average dry weather flow, and existing flows averaging approximately 6.5 mgd. The treated wastewater is discharged to the Sacramento River under the terms of NPDES Permit No. CA0079081 issued by the Central Valley RWQCB. Expected growth in the city in the near future is expected to increase wastewater flows beyond the existing system capacity. The City has plans to expand the capacity in two phases: first to 12 mgd, and then to 15 mgd. At 15 mgd, the treatment capacity is estimated to be sufficient to accommodate growth projections for the city. However, if all areas within the Nitrate Compliance Plan area, which includes unincorporated county areas, ultimately convert from existing septic systems to sewer connection, the 15 mgd treatment capacity would be exceeded by 2025.

ii. Richvale Sanitary District
The Richvale Sanitary District operates a wastewater pond treatment system with a permitted design capacity of 30,000 gpd, average dry weather flow. The maximum wet weather hydraulic capacity of the plant is 80,000 gpd. Current flows average approximately 9,000 gpd during the dry season, but during the wet season excessive amounts of infiltration and inflow (I&I) to the sewer system cause peak flows to exceed the system design capacity. The RWQCB has imposed a cease and desist order on the District, requiring action by the District to determine and correct the sources of excessive I&I, and prohibiting system expansion until the order is lifted. The District has been in the process of replacing sewer lines and working with property owners to upgrade private sewer laterals to respond to the cease and desist order.

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25 Unless otherwise noted, information presented is from Butte County LAFCO, February 2006, Municipal Service Review - Domestic Water and Wastewater Services.
iii. Sewerage Commission Oroville Region

The Sewerage Commission–Oroville Region (SCOR) system and Regional Wastewater Treatment Plant is the single regional wastewater treatment facility for the Oroville area.

SCOR operates under a Joint Powers Agreement with its member entities, including the City of Oroville, TWSD and Lake Oroville Area Public Utility District (LOAPUD). SCOR is responsible for the operation and maintenance of the wastewater treatment plant and three interceptor/trunk lines that collect wastewater discharges from the three member entities. The treatment plant and interceptor lines are less than 30 years old and are generally in good condition. Additionally, SCOR is responsible for meeting the wastewater treatment and discharge standards specified in the federal NPDES permit issued by the Central Valley RWQCB.

As of 2006 and 2007, the SCOR treatment plant currently receives an average dry weather flow of 2.9 mgd and an average wet weather flow of 3.3 mgd.27 Effluent discharge from the plant is expected to increase to approximately 5.2 mgd by 2025. Currently, the treatment facility is capable of treating dry weather wastewater flows of 6.5 mgd and is therefore adequate to accommodate increased dry weather flow from expected growth in its service area over the next 20 years.

The treatment plant is permitted by the Central Valley RWQCB to receive, treat and discharge a maximum of 6.5 mgd of daily dry weather flow (July through September). The RWQCB has no limitation of wet weather flow discharges from the plant (October through June). SCOR has reported to the

26 Unless otherwise noted, all information presented in this section comes from Ray Sousa and Bill Lampkin, Sewerage Commission – Oroville Region, personal phone communication with David Early and Chad Markell, DC&E, February 1, 2008.

RWQCB that the plant has the capacity to process, treat and discharge a maximum of 15.5 mgd of wet weather flow.28

Historical operational data provided to the RWQCB by SCOR show that over the last ten years, the highest average wet weather flows received by the plant occur annually in the calendar months of January and February, with average daily flows based on monthly throughput to the plant of 4.2 mgd. Since 1997, the average instantaneous peak wet weather flows (PWWFs) during the months of January and February are 12.3 and 12.0 mgd, respectively. The highest individual instantaneous PWWFs range from 16.0 mgd in January 2004 to 23.2 mgd in January 1997. These instantaneous PWWFs represent the highest sewage flow rate into the plant during a 24-hour period during a wet weather event.

In the last ten years, there have been eight occurrences of instantaneous PWWFs exceeding the treatment plant’s maximum daily wet weather throughput flow rate of 15.5 mgd. During these occurrences, excess flow is diverted to one or two equalization basins, or storage ponds, with a reported total temporary storage capacity of 26.5 million gallons. The basins temporarily store peak flows during the time necessary for the storm event and peak flows to drop below the plant’s maximum throughput level. The temporarily stored wastewater is then processed through the plant. Data shows that since 1997, the plant has successfully processed all peak wet weather flows by using the storage ponds to temporarily store peak flows. SCOR has reported that the higher historical peak flow events do challenge the plant’s capacity limits. Continued I&I reduction efforts to be completed by the collection entities in the upcoming years are expected to reduce peak wet weather flows to the plant in the future.

28 Central Valley Regional Water Quality Control Board letter to SCOR dated April 9, 2008, regarding “Order to Submit Information Pursuant to California Water Code Section 13267, Sewerage Commission Oroville Regional Wastewater Treatment Plant.”
In December 2005, SCOR experienced a sanitary sewer overflow in their east interceptor line outside the plant. The east interceptor line conveys the combined flows from all three collection entities into the plant. This overflow was of a limited duration, and was caused by excessive I&I contributed by the three collection entities. As discussed above, continued I&I reduction efforts to be completed by the collection entities in the upcoming years should have the effect of reducing peak wet weather flows to the east interceptor line in the future.

SCOR recently conducted a capacity study, updated its Master Plan and adjusted its connection fee structure to plan and fund additional improvements that will address increased capacity needs in both the interceptor lines and treatment plant capacity. The capacity study and Master Plan updates provide an improvement and funding plan that will enable SCOR to accommodate an additional 4,200 Equivalent Dwelling Units (EDUs). SCOR will implement the needed improvements incrementally to meet increased capacity needs.

The wastewater collection systems of TWSD and LOAPUD, SCOR member entities that serve the unincorporated lands in the Oroville area, are discussed below.

a) Thermalito Water and Sewer District

TWSD provides wastewater collection services to approximately 1,985 customers or approximately 2,650 EDUs. Wastewater dry weather flows presently average 0.41 mgd, or approximately 155 gpd per EDUs, and are ex-

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29 Sousa, Ray, Sewerage Commission – Oroville Region, personal communication with Mike Harris, Questa Engineering, October 2, 2009.

30 Unless otherwise noted, all information presented in this section comes from Mike Edwards, Compliance Officer, Thermalito Irrigation District, personal phone communication with Joanna Jansen and Chad Markell, DC&E, February 14, 2008.
expected to grow to 0.67 mgd within the next 20 years. Instantaneous PWWFs are 4 mgd.\textsuperscript{31}

TWSD’s collection system consists of 40 miles of sanitary sewer line and is generally in adequate condition. TWSD’s collection system discharges into the SCOR west interceptor pipe for treatment at their plant. On average, dry weather flows are at approximately 30 percent of system capacity and wet weather flows are at approximately 70 to 80 percent of capacity. During extreme wet weather events, the system experiences the highest level of I&I impact at the east trunk line. During major storm events, the east trunk line has almost overflowed.

Currently, TWSD has issued “will serve” letters that commit to serving approximately 30 additional EDUs.\textsuperscript{32} Although TWSD has issued these letters, there are no plans for future infrastructure capacity expansion. Developers are required to either upgrade existing infrastructure or install new infrastructure for new development within TWSD’s Sphere of Influence (SOI).

\textit{b) Lake Oroville Area Public Utility District}

LOAPUD provides sanitary sewer collection services to approximately 12,000 individuals, mainly in unincorporated areas east and south of the City of Oroville. As of January 2008, LOAPUD provides service for approximately 5,900 EDUs. Population growth in the service area is expected to reach over 20,000 individuals by 2025 as significant development is expected throughout the service area. LOAPUD will likely annex 4,400 acres of the

\textsuperscript{31} Rick Walls, Senior Civil Engineer, City of Oroville Public Works Department, personal communication with Joanna Jansen and Chad Markell, DC&E, March 20, 2009.

\textsuperscript{32} Bill Lampkin, Environmental Compliance Manager, Sewerage Commission – Oroville Region, personal email communication with Alexis Lynch, DC&E, December 10, 2008.
State Water Project area which has been approved by LAFCO and is pending State Board of Equalization approval.33

On average, LOAPUD collects 384 million gallons of wastewater annually. Current dry weather flows are 0.81 mgd and are expected to increase to 1.35 mgd over the next 20 years. A PWWF was measured in December 2005 at 9.8 mgd.34 LOAPUD has approximately 75 miles of sanitary sewer line and six pump stations, with approximately 80 percent of the system constructed in the last 35 years.35

In general, the collection system is in good condition and lines requiring service are maintained by LOAPUD. LOAPUD’s Master Plan from 2000 outlines several capital improvements, including pipeline replacement, new pipeline installation and facility construction to be completed by 2020. LOAPUD’s collection system discharges into the SCOR east interceptor pipe for treatment at the SCOR plant. Currently, there are no collection capacity issues and no plans for capacity expansion. Within the LOAPUD system, new development may be required to upgrade the existing collection system if additional capacity is required. LOAPUD is currently on schedule to meet its construction goals outlined in the 2000 Master Sewer Plan, having completed all but three of the recommended improvements in the Plan.36

b. Community Wastewater Systems

Although the term is not codified, community wastewater systems are generally defined as those systems serving more than one developed parcel, such as residential subdivisions or mixed-use developments. In Butte County, com-

33 Brown, Alan, General Manager, LOAPUD, personal letter communication with Jared Hancock, City of Oroville, January 23, 2008.
34 Alan Brown, General Manager, Lake Oroville Area Public Utilities District, personal email communication with Alexis Lynch, December 16, 2008.
36 Butte County LAFCO, February 2006, Municipal Service Review - Domestic Water and Wastewater Services.
Community wastewater systems have been developed with public management and oversight provided by various County Service Areas (CSAs). The Butte County Public Works Department is generally responsible for overseeing operation and maintenance of the systems, with the Public Health Department’s Environmental Health Division providing technical assistance and monitoring functions.

There are currently six CSAs managing a number of community wastewater systems in the county. A summary is provided in Table 4.14-4. All of these systems are regulated by the RWQCB except for one. The exception is CSA 135, Zone 4, which serves a small four-lot subdivision and is regulated by the Butte County Environmental Health Division. The typical wastewater system includes a collection system, such as sewers; treatment facilities, including septic tanks, wastewater ponds and advanced treatment units, such as sand filters; and final effluent dispersal to community leachfields and/or spray irrigation fields.

c. On-Site Sewage Disposal Systems
There are an estimated 50,000 on-site sewage disposal systems (i.e. septic systems) in Butte County, serving approximately half of the county’s population. Roughly 25 percent of the septic systems are located within and fall under the jurisdiction of the Town of Paradise; the remaining 75 percent of the systems fall under County jurisdiction. On-site sewage disposal systems generally fall into two categories: standard systems and alternative systems.

i. Standard Systems
Standard septic tank-leachfield systems have historically been the common practice in most of the unincorporated areas of the county. Standard on-site sewage disposal systems consist of two major components: (1) a septic tank for collection, settling and digestion of sewage wastes from the building; and (2) a disposal system for dispersal and absorption of septic tank effluent into

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37 Fogel, Doug, Program Manager, Environmental Health, Public Health Department, Butte County, personal communication with Lisa Katz, DC&E, July 3, 2007.
### Existing CSA Community Wastewater Systems

<table>
<thead>
<tr>
<th>System Name</th>
<th>RWQCB Status</th>
<th>Parcels Served</th>
<th>System Description</th>
<th>County Environmental Health Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSA 21 Zone 1 – Oakridge Sewer – Skansen</td>
<td>3B</td>
<td>34</td>
<td>Gravity sewer system with fresh water flushing - collector piping to dosing tank to two ponds; semi-annual cleanout of ponds.</td>
<td>Monthly monitoring and water testing</td>
</tr>
<tr>
<td>CSA 21 Zone 2 – Oakridge Sewer – The Bluffs at Spanish Gardens</td>
<td>None</td>
<td>23</td>
<td>STEP&lt;sup&gt;b&lt;/sup&gt; to community leachfield.</td>
<td>Quarterly monitoring</td>
</tr>
<tr>
<td>CSA 21 Zone 3 – Oakridge Sewer – The Bluffs at Spanish Gardens</td>
<td>None</td>
<td>3</td>
<td>Individual on-site septic tanks and leachfields.</td>
<td>None required</td>
</tr>
<tr>
<td>CSA 21 Zone 4 – Oakridge Sewer – Rocky Bluffs</td>
<td>3B</td>
<td>31</td>
<td>STEP&lt;sup&gt;b&lt;/sup&gt; to dosing siphon to bottomless sand/gravel filter; redundant system available.</td>
<td>Quarterly monitoring with water testing</td>
</tr>
<tr>
<td>CSA 82 – Stirling City Sewer</td>
<td>2B</td>
<td>94</td>
<td>Gravity main line to two concrete storage tanks to three ponds; storage tanks constructed in 2002 to replace redwood storage tank.</td>
<td>Quarterly monitoring</td>
</tr>
<tr>
<td>CSA 94 – Sycamore Valley Sewer and Lighting</td>
<td>None</td>
<td>22</td>
<td>STEP&lt;sup&gt;b&lt;/sup&gt; to community leachfield.</td>
<td>Quarterly monitoring</td>
</tr>
<tr>
<td>CSA 135 Zone 2 – Keefer Creek Estates</td>
<td>3B</td>
<td>21</td>
<td>STEP&lt;sup&gt;b&lt;/sup&gt; to dosing siphon to gravel filter to community leachfield; Homeowners Association administers WDRs.&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Quarterly monitoring</td>
</tr>
<tr>
<td>CSA 135 Zone 4 – McWilliams</td>
<td>3B</td>
<td>4</td>
<td>STEP&lt;sup&gt;b&lt;/sup&gt; to open-bottom sand filters in community leachfield.</td>
<td>Quarterly monitoring</td>
</tr>
<tr>
<td>CSA 141 – Mountain Oaks Sewer</td>
<td>2B</td>
<td>55</td>
<td>STEP&lt;sup&gt;b&lt;/sup&gt; to dosing chamber to pond to irrigation system; redundant system available; Homeowners Association administers WDRs.&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Quarterly monitoring</td>
</tr>
<tr>
<td>CSA 169 Zone 1 – Pheasant Landing</td>
<td>3B</td>
<td>17</td>
<td>STEP&lt;sup&gt;b&lt;/sup&gt; to individual sand filters to shallow percolation.</td>
<td>Administers WDRs&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>CSA 169 Zone 2 – Pheasant Landing</td>
<td>None</td>
<td>26</td>
<td>STEP&lt;sup&gt;b&lt;/sup&gt; to individual sand filters to shallow percolation; Homeowners Association administers WDR;&lt;sup&gt;c&lt;/sup&gt; County may assume responsibility of regulation oversight and maintenance in the future, but developer continues to operate and maintain system.</td>
<td>Currently only fee collection</td>
</tr>
</tbody>
</table>

<sup>a</sup> Combined rating of threat to water quality (Categories 1, 2 and 3) and complexity of discharge (Categories A, B and C) as assigned by the RWQCB in accordance with criteria set forth in California Code of Regulations, Title 23, Division3, Chapter 9, Article 1. Assigned rating is used to establish permit fees.

<sup>b</sup> STEP = Septic tank effluent pump collection system.

<sup>c</sup> WDR = Waste discharge requirements.
the soil or geologic strata. In the septic tank, heavier solids settle, forming a sludge layer at the bottom of the tank while fats, oils, grease, lighter solids, and decomposing organic material float to the surface to form a scum layer. The effluent from the “clear zone,” above the sludge and below the scum layer, flows by gravity to the disposal field. The conventional type of disposal system approved for use in Butte County is the standard leachfield trench. Seepage pits have also been used; however, they are generally discouraged.

ii. Alternative Systems

Alternative systems include supplemental treatment systems and various types of dispersal methods used in place or as a variation of a standard gravity leaching trench. The most common types of supplemental treatment are sand filters, proprietary packed bed filters, and aerobic treatment units. Alternative dispersal methods include pressure distribution, subsurface drip irrigation, mound systems, and engineered fill. Alternative systems are not currently covered under Butte County on-site wastewater regulations and, therefore, their use has been limited mainly to repair situations, systems permitted by the RWQCB, and other special cases. The proposed new ordinance expected to be implemented in early 2010 includes provisions and criteria for the general use of a broad range of alternative systems.

3. Standards of Significance

General Plan 2030 would have a significant impact with regard to wastewater service if it would:

♦ Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

♦ Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

♦ Have insufficient wastewater treatment capacity available to serve the project’s projected demand in addition to existing demand.
4. Impact Discussion
The following discussion provides an analysis of potential project and cumulative water service impacts that could occur as a result of the projected 2030 buildout of General Plan 2030.

a. Project Impacts
i. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

Development allowed by General Plan 2030 would generate sewage wastes and would require an acceptable method of wastewater treatment and disposal. Depending on the location and type of construction, wastewater treatment and disposal may be provided by either: an existing, new, or expanded municipal or community wastewater facility; or construction of a private on-site wastewater treatment and disposal facility.

As noted above, municipal and community wastewater facilities, with few exceptions, come under the direct regulatory authority of the Central Valley RWQCB. All such facilities are required to comply with wastewater treatment requirements of the RWQCB, implemented through the issuance of WDRs and self-monitoring and reporting programs. Any expansion of facilities would also require the filing of a Report of Waste Discharge with the RWQCB, and appropriate modification of WDRs. This provides the mechanism to assure compliance with RWQCB requirements for any new construction served by municipal and community wastewater facilities.

Private on-site wastewater treatment and disposal systems, and some very small community systems, are regulated in accordance with County regulations administered by the Butte County Public Health Department, Environmental Health Division. The County regulations are structured to be compatible with guidelines and criteria contained in the RWQCB Basin Plan, and are subject to RWQCB review and acceptance. The County is in the process of updating the current individual on-site wastewater regulations, consistent with the provisions of the Basin Plan. New construction served by
private on-site wastewater systems would be required to comply with County regulations that implement the requirements of the Basin Plan.

The General Plan 2030 Public Facilities and Services Element includes policies and actions that address the need for adequate wastewater treatment and disposal facilities for new development to assure continued compliance with applicable requirements of the RWQCB. Policy PUB-P12.3 requires that new community sewerage systems be managed by a public County sanitation district or other County-approved methods and that proponents demonstrate the financial viability of constructing, operation, and maintaining the proposed community sewerage system. Additionally, water quality standards will be upheld according to Policy PUB-P12.4, which requires all sewer collection and transmission systems to minimize potential inflow and infiltration, Policy PUB-P12.2, which supports wastewater regulation in the Chico area according to the Nitrate Compliance Plan, and Action PUB-A12.1, which calls for an update to on-site wastewater policies and standards.

The proposed General Plan 2030 policies and actions noted above, in conjunction with applicable State and County regulatory requirements, would ensure that new development would be served by appropriate wastewater treatment facilities constructed and operated in conformance with requirements of the RWQCB. Therefore, impacts to wastewater treatment requirements resulting from the proposed project would be less than significant.

ii. **Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.**

Development allowed by General Plan 2030 may require new and/or expanded wastewater treatment and disposal facilities, either municipal, community, or private on-site systems.

This section evaluates the projected 2030 buildout estimates for the service areas of the two existing municipal treatment facilities serving unincorporated areas of the county: the Richvale Sanitary District and SCOR. Sewer service
in the unincorporated areas around Chico would be limited to the replacement of existing septic systems in the Nitrate Compliance Plan area, and would not be provided to serve new development.

  a) Richvale Sanitary District
The Richvale Sanitary District treatment plant has a permitted design capacity of 30,000 gpd, and existing wastewater flows averaging approximately 9,000 gpd during the dry season. However, during the wet season, excessive amounts of infiltration and inflow to the sewer system cause peak flows to exceed the system design capacity. Because of this, the District is under a cease and desist order imposed by the RWQCB. Projected 2030 buildout in the Richvale area is 150 residential units, which would generate wastewater flows of approximately 27,500 gpd, based on an estimated average flow of 250 gpd per residence. The additional sewage flows would exceed the capacity of the existing treatment plant under wet weather conditions, and expansion would be required.

  b) Sewerage Commission – Oroville Region
The wastewater facility operated by SCOR has a design capacity of 6.5 mgd, average dry weather flow, and current wastewater flows of approximately 3.2 mgd, leaving a surplus capacity of approximately 3.3 mgd under average dry weather flow. Projected 2030 buildout and associated sewage flow estimates in the service area of the two member agencies serving the unincorporated area, LOAPUD and TWSD, are provided in Table 4.14-5.

As indicated in Table 4.14-5, the total estimated demand for sewage treatment capacity in these two districts is approximately 0.65 mgd, which is within the available surplus treatment capacity at the SCOR facility under average dry weather flow. Therefore, expansion of SCOR treatment plant capacity

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38 Based on 100 gpd per capita and 2.5 persons per residence; City of Chico standard of 88 gpd/capita (City of Chico Collection System Facilities Sanitary Sewer Master Plan Update, May 2003); and City of Biggs estimate of 288 gpd/residence (City of Biggs Municipal Service Review, November 2008).
### Table 4.14-5  LOAPUD and TWSD 2030 Sewage Flow Estimates

<table>
<thead>
<tr>
<th>Agency</th>
<th>Residential Units</th>
<th>Retail/Office Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAPUD</td>
<td>3,300</td>
<td>118,100 ft&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>TWSD</td>
<td>400</td>
<td>655,200 ft&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,700</strong></td>
<td><strong>773,300 ft&lt;sup&gt;b&lt;/sup&gt;</strong></td>
</tr>
</tbody>
</table>

*Estimated Flow (gpd)*

<table>
<thead>
<tr>
<th>Agency</th>
<th>Residential Units</th>
<th>Retail/Office Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>573,500&lt;sup&gt;a&lt;/sup&gt;</td>
<td>77,300&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup> Based on unit flow rate of 155 gpd per residence, which is the existing TWSD flow rate per EDUs.

<sup>b</sup> Based on unit flow rate of 0.10 gpd per ft<sup>2</sup> (15 gpd per employee, one employee per 150 ft<sup>2</sup>), Butte County Public Health Department, Draft On-Site Wastewater Manual, Part 3, May 28, 2008.

would not be required to meet the requirements of these two districts. However, since the SCOR facility also serves the City of Oroville, the additional projected growth in the city could combine to exceed the available surplus treatment capacity. Moreover, additional improvements are already needed to both SCOR’s interceptor lines and treatment plant in order to address the existing lack of capacity for peak wet weather flow, as discussed in below in more detail.

**c) Impact Significance Determination**

General Plan 2030 Policy PUB-P13.2 requires that new development demonstrate the availability of a safe, sanitary, and environmentally sound wastewater system. Therefore, any development in both the SCOR and the Richvale areas would have to meet this standard. No studies have been completed to determine the feasibility and associated environmental impacts of expanding these existing plants. This EIR is a programmatic document and does not evaluate the environmental impacts of any project-specific development. Any new or expanded municipal or community wastewater facilities would be considered a project-specific development and would come under the direct regulatory authority of the RWQCB, would require a Report of Waste Dis-
charge to be filed, and would require issuance of new or modified WDRs by the RWQCB. The WDR process requires environmental review in accordance with CEQA. In addition, new on-site wastewater facilities would be required to comply with the County regulations, including applicable mitigation measures adopted as a result of the environmental review.

In conjunction with applicable State and County regulatory requirements, new and expanded wastewater facilities required to serve new development would conform to CEQA regulations to ensure that any environmental effects would be less than significant.

iii. Have insufficient wastewater treatment capacity available to serve the project’s projected demand in addition to existing demand.

General Plan 2030 would allow development that would require new and/or expanded wastewater treatment and disposal facilities. The additional wastewater treatment capacity may be met by municipal, community, or private on-site wastewater and disposal systems. Planning and construction of new and expanded wastewater facilities to accommodate new development is an on-going process for any area where future growth is anticipated.

Projected 2030 buildout and associated wastewater flows in the service area of LOAPUD and TWSD are within the treatment capacity of the SCOR regional wastewater treatment plant. However, the SCOR facility also serves the City of Oroville, and the combined growth within the city and county areas may exceed the plant capacity before 2030. Also, projected growth in the area served by the Richvale Sanitary District is expected to exceed the capacity of the existing wastewater treatment system, which is adequate during the dry season, but currently experiences excessive wastewater flows during the wet weather season.

Wastewater collection system capacity is also an issue in both the Oroville and Richvale service areas. In Oroville, the TWSD and LOAPUD collection systems currently have adequate capacity for current and projected demand. However, the City of Oroville collection system experiences excessive wet
weather sewer flows that create sewer overflow for the SCOR interceptor sewers and additional operational challenges for the treatment plant. As noted previously, SCOR recently conducted a capacity study, updated its Master Plan, and adjusted its connection fee structure to plan and fund additional improvements that will address increased capacity needs in both the interceptor lines and treatment plant capacity.

The proposed General Plan 2030 Public Facilities and Services Element includes policies that address the need for and the proper planning of wastewater facilities. Policy PUB-P13.2 requires demonstration of available capacity at a wastewater treatment system that is safe, sanitary, and environmentally sound as a condition of approval for new development. For developments that will rely on on-site wastewater systems, Policy PUB-P13.3 requires applicants to provide detailed plans demonstrating that the system will be adequate to serve the project.

General Plan 2030 policies listed above would ensure sufficient wastewater treatment capacity is available to serve the project’s projected demand, in addition to existing demand. Therefore, the impact to wastewater treatment resulting from implementation of General Plan 2030 would be less than significant.

b. Cumulative Impacts
Development allowed by General Plan 2030 would generate increased amounts of wastewater in the unincorporated areas of the county. As previously discussed, wastewater generated in these areas would be treated by on-site septic systems, standalone community systems, the Richvale Sanitary District, or the SCOR Regional Wastewater Treatment Facility. On-site septic tanks and community systems are independent, self-contained wastewater treatments systems designed to meet County and RWQCB standards that provide for avoidance of cumulative impacts. The Richvale Sanitary District is also an isolated wastewater treatment facility with limited capacity and expansion possibilities; new development and wastewater generation in the Richvale area would be a local issue and would not contribute to cumulative
impacts. However, in the SCOR area, growth in the unincorporated area and the City of Oroville would have a combined effect on SCOR wastewater facilities, and the potential effects warrant additional discussion as provided below.

The SCOR treatment plant is permitted by the Central Valley RWQCB to treat and discharge 6.5 mgd of dry weather flow between July and September. Based on historical connection rates of 1 percent per year, SCOR would reach its permitted treatment and discharge capacity in 16 years. However, the City of Oroville General Plan projects growth rates of over 1 percent a year. If the projected growth rate is accurate, SCOR would reach its permitted treatment capacity sooner.

SCOR’s operating permit from the Central Valley RWQCB requires that SCOR notify the Central Valley RWQCB when the plant is within 48 months of reaching its permitted capacity. At the time of notification that the plant is reaching its permitted capacity, SCOR will utilize the improvements outlined in its Sanitary Sewer Management Plan to initiate a review and update of the Central Valley RWQCB’s treatment and discharge permit. SCOR will be required to work with the Central Valley RWQCB to complete an approved plan and renew its treatment and discharge permit.

In addition, development in the area surrounding Butte County may require the construction of new or expanded wastewater facilities. As with the project-level analysis in Section B.4.a, any new or expanded wastewater facilities would be subject to project-specific review under CEQA and the direct regulatory authority of the RWQCB, and would require a Report of Waste Discharge to be filed and issuance of new or modified WDRs by the RWQCB.

The processes and requirements described in this section will ensure that the cumulative impacts related to wastewater would be less than significant.
5. Impacts and Mitigation Measures

Since there are no significant impacts related to wastewater as a result of General Plan 2030, no mitigation measures are required.

C. Stormwater

This section describes existing regulations and physical conditions of stormwater facilities in Butte County, as well as potential impacts of the proposed General Plan 2030 with regard to stormwater facilities.

1. Regulatory Framework

This section summarizes existing regulations that apply to stormwater quality and stormwater drainage.

a. Stormwater Quality

As discussed in Section 4.8, Hydrology and Water Quality, the SWRCB is responsible for implementing the Clean Water Act (CWA) and does so through issuing NPDES permits to cities and counties through RWQCBs. Federal regulations allow two permitting options for stormwater discharges: individual permits and general permits. The California SWRCB elected to adopt a statewide general permit (Water Quality Order No. 2003-0004-DWQ) for Small Municipal Separate Storm Sewer System (MS4s) operators covered under the CWA to efficiently regulate stormwater discharges under a single permit. Permittees must meet the requirements in Provision D of the general permit, which require development and implementation of a Stormwater Management Plan (SWMP) with the goal of reducing the discharge of pollutants to the maximum extent practicable.

Butte County operates under a Small MS4 permit as required by Phase II of the NPDES permit. In order to fulfill the requirements of the permit, Butte County developed and implemented a Storm Water Management Program in 2003. The Program is managed at the State level by the SWRCB under a permit from the EPA. The Program includes the following core elements: public education and outreach; public participation and involvement; illicit dis-
charge detection and elimination; construction site stormwater runoff control; post-construction stormwater management in new development and redevelopment; and pollution prevention and good housekeeping for County operations and facilities. The Program also includes descriptions of Best Management Practices (BMPs) to address specific activities identified in the regulations, such as illicit discharge. The regulations are contained in Chapter 50 of the Butte County Code. The Department of Public Works and the Development Services Department are responsible for planning, inspection, enforcement, and permit clearances for construction projects in the county that are subject to the Program.

b. Stormwater Drainage
Applicable regulations for stormwater drainage are covered in several places in the Butte County Municipal Code, including: Chapter 3, Article XI, Drainage Impact Fees; Chapter 13, Grading and Mining; and Chapter 20, Subdivisions. Under the Code, stormwater drainage provisions for new development in the county are required to be constructed in accordance with adopted master drainage plans where they exist and to pay applicable drainage impact fees, depending upon the location of the project. At a minimum, the County Code requires new development to construct on-site storm drainage facilities with mitigation for no increase in peak runoff from the site above pre-development conditions.

2. Existing Conditions
Stormwater drainage master plans have been developed for the two main urban areas of Butte County: Thermalito/Oroville and Chico.

a. Thermalito Master Drainage Plans
The Thermalito Master Drainage Plans are a joint effort of the Public Works Departments of Butte County and the City of Oroville. The Plans were initially developed in 1980 and recently updated in 2007. The Master Drainage Plans for this area include regional and sub-basin hydrological analysis of 10-
and 100-year storm conditions, identification of deficiencies in the existing drainage systems, recommendations for regional drainage improvements such as detention basins and trunk lines, cost estimates, and implementation recommendations. Future development in the areas covered by these Master Drainage Plans is required to conform to applicable recommendations.

b. Chico Storm Drainage Master Plan
The Chico Storm Drainage Master Plan addresses drainage needs in the Chico urban area. The Master Plan was initially developed as a Preliminary Plan in 1987 and updated with an Addendum in 1997. The Plan covers storm drainage systems operated and maintained by both the City of Chico and Butte County. The Preliminary Plan provided a conceptual drainage plan for ultimate buildout conditions focusing on major pipes and channel capacity issues. The 1997 Addendum addressed channel stabilization issues for waterways in the urban area, best management practices, and various design and data collection needs.

There is no storm drainage master plan for the remainder of Butte County; however, a number of local drainage assessment districts have been established to provide for storm drainage in individual subdivisions and other development areas. Many of these drainage systems are within CSAs, and are operated and maintained by the County Department of Public Works. The County is also responsible for construction and maintenance of the many thousands of culverts, ditches, and waterways for the road drainage systems in the county.

3. Standards of Significance
General Plan 2030 would have a significant impact with regard to stormwater facilities if it would:

♦ Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
4. Impact Discussion
The following discussion provides an analysis of potential project and cumulative stormwater impacts that could occur as a result of the projected 2030 buildout of General Plan 2030.

a. Project Impacts
   i. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

General Plan 2030 would allow new development and more impervious surface coverage that would generate additional storm water runoff. Without new or expanded drainage facilities, the runoff would endanger public safety and the environment.

Provisions of the Butte County Code require that all new development provide appropriate storm drainage facilities in conformance with adopted master drainage plans where they exist and, at a minimum, with mitigation to maintain peak runoff rates at levels equal to or less than pre-development conditions. The County Grading Ordinance requires permitting and environmental review of projects involving the grading of more than 1,000 cubic yards of soil in the eastern portions of the county, and the NPDES permit requirements apply to projects involving the grading of 1 acre or more. These permitting and review requirements ensure a process for identifying and avoiding the creation of project-specific environmental impacts related to new or expanded storm drainage facilities.

The General Plan 2030 Water Resources Element contains policies to ensure that adequate stormwater facilities are provided by new development. Policy W-P5.2 requires that new development adequately mitigate its water quality impacts from stormwater runoff, and Policy W-P5.3 encourages the use of pervious pavements to reduce urban runoff. In addition, Policy W-P1.2 directs the County to cooperate with State and local agencies in efforts to identify and eliminate or minimize all sources of existing and potential point and non-point sources of pollution to ground and surface waters, including dis-
charges from storm drains, among other sources. Policy W-P1.4 encourages Low Impact Development that minimizes impervious area, minimizes runoff and pollution, and incorporates BMPs.

The policies listed above would help to reduce increases in stormwater runoff quantity resulting from implementation of General Plan 2030. However, new stormwater drainage facilities would likely be needed to accommodate anticipated development. Specific environmental impacts of necessary new stormwater drainage facilities would be determined either through CEQA review of new development projects or of Public Works improvements. This EIR is a programmatic document and does not evaluate the environmental impacts of any project-specific development. Any new or expanded stormwater facilities would be considered as part of a specific project and would require environmental review in accordance with CEQA. In addition, new stormwater facilities would be required to comply with the County regulations described above, as well as applicable mitigation measures adopted as a result of the environmental review.

As a result, General Plan 2030 would have a less-than-significant impact on stormwater drainage facilities.

b. Cumulative Impacts
As development proceeds within and around Butte County, including within the incorporated cities, impervious surfaces would increase, thereby increasing stormwater drainage rates and quantity. General Plan 2030 policies minimizing increases in stormwater runoff, the detailed Butte County Development Code stormwater drainage provisions for new development, and the provisions of the County’s NPDES permit would combine to limit the need for new stormwater facilities. These regulations also ensure that new facilities are carefully planned and extensively reviewed for potential environmental impacts prior to construction. These regulations would combine to prevent a cumulative impact from the construction of new stormwater facilities within Butte County. In addition, new stormwater facilities in the region surrounding Butte County would be subject to project-specific environmental analysis.
and NPDES permit and other requirements of the applicable jurisdiction. Therefore, implementation of General Plan 2030 would result in a less-than-significant cumulative impact to stormwater facilities.

5. Impacts and Mitigation Measures
Since there are no significant impacts related to stormwater as a result of General Plan 2030, no mitigation measures are required.

D. Solid Waste

This section describes existing regulations and solid waste facilities in Butte County, as well as potential impacts of the proposed General Plan 2030 with regard to solid waste facilities.

1. Regulatory Framework
This section summarizes existing federal, State, and local policies and regulations that apply to solid waste services.

a. Federal and State Regulations

i. California Integrated Waste Management Act
California’s Integrated Waste Management Act of 1989 (AB 939) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, though source reduction, recycling and composting. To help achieve this, the Act requires that each city and county prepare and submit a Source Reduction and Recycling Element. AB 939 also established the goal for all California counties to provide at least 15 years of on-going landfill capacity. As part of the California Integrated Waste Management Board’s (CIWMB) Zero Waste Campaign, regulations affect what common household items can be placed in the trash. As of February 2006, household materials including, but not limited to, fluorescent
lamps and tubes, batteries, electronic devices, and thermostats that contain mercury are no longer permitted in the trash.\textsuperscript{42}

\textit{ii. California Solid Waste Reuse and Recycling Access Act of 1991}

The California Solid Waste Reuse and Recycling Access Act requires areas to be set aside for collecting and loading recyclable materials in development projects. The Act required the CIWMB to develop a model ordinance for adoption by any local agency relating to adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model, or an ordinance of their own. The intent of the Act is to require development projects to include advanced planning that focuses on solid waste issues at the beginning of a project and implement an adequate recycling program for the development project.

\textbf{b. Countywide Integrated Waste Management Plan}

The Countywide Integrated Waste Management Plan (CoIWMP) is mandated by State law under AB 939. The purpose of the CoIWMP is to describe local waste diversion and disposal conditions and lay out realistic programs to achieve the waste diversion goals outlined in AB 939. The CoIWMP serves as the primary tool for designing waste reduction programs that are countywide in scope. The Plan also addresses the county’s landfill needs in a comprehensive way. In Butte County, waste reduction and disposal facilities that require Solid Waste Facility Permits must conform to the policies contained in the CoIWMP.

\textbf{2. Existing Conditions}

Solid waste management facilities in Butte County consist of two transfer stations, a large materials recovery/transfer station facility, the Neal Road Recycling and Waste Facility (Neal Road Facility) and adjacent septic waste disposal area, a private wood waste recycler, and two municipal wood waste recyclers. The City of Chico operates its own compost site for green waste byproducts, located at the Chico Municipal Airport.

Recycling, composting and waste combustion programs in Butte County are designed to make other waste management operations more environmentally friendly and economically efficient. Butte County currently meets the requirements of AB 939, the California Integrated Waste Management Act of 1989. In 2006, approximately 112,000 tons, or about 56 percent, of the solid waste generated within the Butte Regional Solid Waste Management Authority jurisdiction was diverted from permitted disposal facilities. To meet waste diversion and recycling goals, Butte County requires its licensed waste collectors to provide curbside recycling in all cities and towns and most populated unincorporated areas within the county.

Butte County is served by four licensed private haulers who provide residential, commercial, and industrial collection services. Franchise agreements for these services are established in the incorporated cities of Biggs, Gridley, Oroville, and Paradise. In Butte County, Waste Management, Inc. operates North Valley Disposal and North Valley Waste Management. Recology operates Oroville Solid Waste and Recology of Butte County. Northern Recycling and Waste Services have contracted with the Town of Paradise to provide waste collection services and operate the Town’s green waste recycling facility. The other solid waste collection company is Country Roads Disposal. All residential/commercial waste haulers operating in Butte County are required to obtain a permit issued by the Butte County Environmental Health Division after meeting requirements set forth in Chapter 31 of the Butte County Code.

Most municipal wastes are hauled to the Neal Road Facility, which is owned by Butte County and managed by the Butte County Department of Public Works. The Neal Road Facility is permitted to accept municipal solid waste, inert industrial waste, demolition materials, special wastes containing non-friable asbestos, and septage. Hazardous wastes, including friable asbestos,
are not accepted at the Neal Road Facility or any other Butte County disposal facility. The Facility is permitted to accept 1,500 tons per day; however, peak usage rarely exceeds 1,200 tons per day, and the average daily disposal into the landfill is approximately 500 tons.

The total capacity of the Neal Road Facility is approximately 20,217,600 cubic yards (13,141,300 tons). Based on an average waste disposal amount of 500 tons per day and using the Butte County Association of Government’s (BCAG) average annual growth rate of 1.1 percent, it is anticipated that the site will continue to receive solid waste until at least the year 2034.

3. Standards of Significance
General Plan 2030 would have a significant impact with regard to solid waste if it would:

♦ Not be served by a landfill with sufficient permitted capacity to accommodate the buildout of the project’s solid waste disposal needs.

♦ Not comply with federal, State, and local statutes and regulations related to solid waste and recycling.

4. Impact Discussion
The following discussion provides an analysis of potential project and cumulative solid waste impacts that could occur as a result of the projected 2030 buildout of General Plan 2030.

a. Project Impacts
i. Not be served by a landfill with sufficient permitted capacity to accommodate the buildout of the project’s solid waste disposal needs.

Development allowed by General Plan 2030 would occur entirely within Butte County. Therefore, the majority of the solid waste generated by new development would be disposed into the Neal Road Facility. As discussed in Section D.2, the Neal Road Facility is currently operating below capacity.

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43 Rodowick, Steve, Butte County Recycling Coordinator, personal communication with DC&E, March 2, 2007.
The landfill permit estimates the landfill to reach capacity in 2033; however, current trend projections estimate a later date. As a result, it can be concluded that there would be adequate capacity in the landfill to support county increases in population. Therefore, implementation of General Plan 2030 would not generate more solid waste than could be accommodated by the daily or long-term permitted capacity of the Neal Road Facility.

In addition, Butte County is committed to reducing its waste stream. As mentioned in Section D.2, in 2006 the County diverted 56 percent of its waste stream from the Facility. Future innovations in recycling technology may allow the County to increase its recycling capability significantly, thereby conserving landfill space. Furthermore, the General Plan 2030 Public Facilities and Services Element includes a number of policies and actions that would reduce the waste stream. Policy PUB-P11.1 requires that the County meet or exceed State waste diversion requirements. Policy PUB-P11.2 requires that construction sites provide for the salvage, reuse, or recycling of construction and demolition materials. Policy PUB-P11.3 requires that public buildings be designed or improved with on-site storage facilities for recycled materials. Policy PUB-P11.4 directs the County to use post-consumer recycled paper and other recycled materials for County operations whenever possible. In addition, Action PUB-A9.1 directs the County to review and update the Recycling and Waste Facility Plan as needed to ensure that there is adequate space to meet projected growth.

Since there is adequate long-term landfill capacity serving Butte County and General Plan 2030 includes policies and actions to reduce the waste stream, General Plan 2030 would have a less-than-significant impact with regard to landfill capacity.

\[ \text{ii. Not comply with federal, State, and local statutes and regulations related to solid waste and recycling.} \]

General Plan 2030 includes policies and actions that help the County to meet the State-mandated 50 percent recycling goal and to encourage recycling minimize the amount of solid waste generated by residents and businesses. Policy
PUB-P9.1 encourages residents, businesses and industries to reduce the use of non-biodegradable and non-recyclable materials, and as the amount of recycled material is largely dependent on individual choice, Action PUB-A9.2 requires education materials to be distributed to the public regarding solid waste reduction, recycling and composting, and proper handling of household hazardous waste. Action PUB-A11.1 calls for the County to implement and expand its program to achieve more aggressive recycling goals, and Policy PUB-P11.1 requires the County to meet or exceed the State waste diversion requirements. In an effort to limit bulky, recyclable construction materials from the landfill, construction sites shall facilitate diversion of those materials according to Policy PUB-P11.2. Given the policies and actions described above, General Plan 2030 would minimize potential increases in solid waste generation by calling for an increase in recycling. Therefore, this impact would be less-than-significant.

b. Cumulative Impacts
Growth within and around Butte County would contribute to an increase in the need for solid waste disposal service. As discussed above, the Neal Road Facility currently has about a 24-year capacity. As a result, it can be concluded that there would be adequate capacity to support county increases in population. In addition, General Plan 2030 includes Policy PUB-P9.5, which requires the Neal Road Facility to prioritize waste materials from Butte County and only accept waste materials from outside the county if there is landfill capacity available. Given the long-term remaining capacity within the Neal Road Facility and priority for waste generated in Butte County, General Plan 2030 would have a less-than-significant cumulative impact on solid waste.

5. Impacts and Mitigation Measures
Since there are no significant impacts related to solid waste generation and landfill capacity as a result of General Plan 2030, no mitigation measures are required.
E. Energy

This section describes current conditions and potential impacts of General Plan 2030 with regard to energy consumption in Butte County.

1. Regulatory Framework
The State has adopted the Title 24 energy standards to reduce the overall energy usage of new development. Title 24 requirements address a wide range of design and performance features of development, including heating and cooling, shading, and lighting.

2. Existing Conditions
Like all California counties, Butte County has become increasingly aware of its energy use. After the energy shortages of the year 2000, the accompanying rise in energy costs, and the negative impacts of fossil fuel combustion, such as poor air quality and the affect of global warming on agricultural crops, Butte County has made energy conservation and implementing renewable energy technologies top priorities.

The residential sector’s energy demands typically constitute the highest electricity sales in rural counties. The most important factors influencing residential energy consumption are the size of the house, the type of house (detached single-family or multi-family structure), the number of major appliances, and the construction and siting of the structure. Residential energy needs are often fulfilled by electricity or a combination of gas and electricity. Space heating is the most energy-consuming activity in residential structures.

Butte County has several opportunities to promote energy conservation and reduce energy consumption, mainly through enforcing construction standards and through its own operations. The Butte County Solar Energy System was completed in August 2004. It is located at the Butte County Government Center on County Center Drive in Oroville. There are four separate arrays containing a total of 6,360 185-watt photovoltaic panels. The total project output is 997 kilowatts AC or 1.18 Megawatts DC. This system provides all the electrical energy needs for three County buildings. When this system became operational, it was the fifth-largest solar energy system in
the United States and is among the top 25 largest solar power systems in the world. In addition, some of the County’s fleet of vehicles now run on alternative fuels. A landfill gas-to-energy project is schedule to start operation at the Neal Road Recycling and Waste Facility in 2010.

3. **Standards of Significance**

General Plan 2030 would have a significant impact on energy consumption if it would:

- Result in the wasteful, inefficient and unnecessary consumption of energy during construction or operation.

4. **Impact Discussion**

The following discussion provides an analysis of potential project and cumulative energy consumption impacts that could occur as a result of the projected 2030 buildout of General Plan 2030.

a. **Project Impacts**

i. *Result in the wasteful, inefficient and unnecessary consumption of energy during construction or operation?*

General Plan 2030 would allow new development within Butte County, providing for a range of land uses with varying energy needs. To prevent the wasteful, inefficient, and unnecessary consumption of energy during the construction and operation of new residential and non-residential buildings, Butte County enforces the State Building Standard Code, Title 24. The State Building Standard Code, including Title 24, applies to any new structures, additions to existing structures, changes to the footprint of a structure, or changes to water and heating systems. In June 2001, amendments to Part 6, Title 24, of the State Administrative Code were enacted. These amendments mandated more stringent conservation and efficiency requirements for new residential and non-residential construction.

In addition to the energy conservation efforts under Title 24, General Plan 2030 includes policies and actions pertaining to renewable energy generation and energy conservation. Policy COS-P3.2 supports the generation and use
of renewable fuel sources in Butte County. Policy COS-P3.4 encourages solar-oriented and renewable design and grid-neutral development, and Policy COS-P3.5 requires developers to give homebuyers the option of having renewable heat and power incorporated into new homes. Policy COS-P4.3 requires that new development meet the guidelines of the California Energy Star New Homes Program, or equivalent, and demonstrate detailed energy conservation measures, and Policy COS-P4.4 requires that new site and structure designs maximize energy efficiency. In addition, Action COS-A4.2 directs the County to review and update the Zoning Ordinance and building codes to allow for innovative energy efficient technologies, and Action COS-A4.3 and COS-A4.4 direct the County to institute County purchasing policies that give preference to renewable energy and energy-efficient products.

Butte County is committed to energy conservation through the enforcement of Title 24 standards and through the policies and actions of the proposed General Plan 2030. The proposed General Plan 2030, along with Title 24 requirements, would prevent the wasteful, inefficient, and unnecessary consumption of energy, resulting in a less-than-significant impact.

b. Cumulative Impacts
As growth occurs throughout the Butte County region, there will be an increased demand for electricity and natural gas. As discussed in Section E.4.a, General Plan 2030 would avoid a significant project-level impact associated with the wasteful use of energy by implementing General Plan 2030 policies and actions and complying with State regulations. Similarly, other jurisdictions in the region are required to meet State Title 24 regulations regarding energy conservation. As a result, General Plan 2030 would contribute to a less-than-significant cumulative impact to the wasteful, inefficient, or unnecessary use of energy.

5. Impacts and Mitigation Measures
Since there are no significant impacts related to energy consumption as a result of General Plan 2030, no mitigation measures are required.
F. *Maximum Theoretical Buildout*

The maximum theoretical buildout allowed under General Plan 2030 would include significantly more development than the projected 2030 buildout analyzed in the impact discussion sections in terms of both the amount and the extent of development. Therefore, the potential for impacts to utilities would increase. However, as discussed in Chapter 3, it is unlikely that maximum theoretical buildout would ever occur under General Plan 2030, and an analysis of maximum theoretical buildout is not required by CEQA.
This chapter discusses greenhouse gas (GHG) emissions in Butte County and evaluates the potential GHG emission impacts associated with General Plan 2030 and the Airport Land Use Compatibility Plan (ALUCP) override. This chapter is based on both a quantitative and spatial analysis, and assesses GHG levels that would result from the proposed project and impacts of projected climate change on Butte County.

A. Regulatory Framework

This section discusses the federal, State, and local policies and regulations that are relevant to the analysis of climate change in Butte County.

1. Federal Legislation and Policy

There is currently no federal overarching law or policy related to climate change or regulation of GHGs. However, recent activity suggests that regulation may be forthcoming, with the US Environmental Protection Agency (EPA) serving in a leadership role to implement such a program. However, EPA regulation may be pre-empted by congressional action should a cap and trade bill be passed prior to adoption of EPA regulation.

This section summarizes recent legal cases, legislation and policy related to climate change and GHG regulation.


Twelve US states and cities including California, in conjunction with several environmental organizations, sued to force the EPA to regulate GHGs as a pollutant pursuant to the Clean Air Act (CAA) in *Massachusetts et al. v. Environmental Protection Agency 549 US 497* (2007). The court ruled that the plaintiffs had standing to sue, GHGs fit within the CAA’s definition of a pollutant, and the EPA’s reasons for not regulating GHGs were insufficiently grounded in the CAA.
In November 2007 and August 2008, the Ninth Circuit US Court of Appeals ruled that a National Environmental Protection Act (NEPA) document must contain a detailed GHG analysis in *Center for Biological Diversity v. National Highway Safety Administration* 308 F. 3d 308 (2007), which was vacated and replaced by *Center for Biological Diversity v. National Highway Safety Administration* 2008 DJDAR 12954 (August 18, 2008). Despite the Supreme Court and Circuit Court rulings to date, there are no promulgated federal regulations limiting GHG emissions.

The federal government passed the Energy Independence and Security Act of 2007 which mandates a host of actions that would aid in the reduction of GHG emissions. These new actions include, but are not limited to: establishing a fuel economy standard of 35 miles per gallon by 2020, improving energy efficiency in lighting and appliances, and investing in efficient and renewable energy use. \(^1\) Despite the passage of the Energy Independence and Security Act, there are no promulgated federal regulations to date directly limiting GHG emissions.

d. EPA Proposed Rule - Mandatory GHG Reporting
On March 10, 2009, the EPA proposed a rule that requires mandatory reporting of emissions of GHGs from large sources within the United States. The proposed rule includes emissions of carbon dioxide (CO\(_2\)), methane (CH\(_4\)), nitrous oxide (N\(_2\)O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF\(_6\)), nitrogen trifluoride (NF\(_3\)), hydrofluorinated ethers (HFE), and select other fluorinated compounds. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions would be required to report annual emissions to the EPA. The rule was ap-

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proved in September 2009 and will go into effect January 1, 2010. The first annual reports for the largest emitting facilities, covering calendar year 2010, will be submitted to the EPA in 2011.

e. EPA Finding of Endangerment
On April 17, 2009, the EPA issued a Proposed Endangerment and Cause or Contribution Finding for Greenhouse Gases under the Clean Air Act. Through this Finding of Endangerment, the EPA Administrator would propose that current and projected concentrations of CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆ threaten the public health and welfare of current and future generations. Additionally, the Administrator would propose that combined emissions of CO₂, CH₄, N₂O and HFCs from motor vehicles contribute to the atmospheric concentrations and thus to the threat of climate change. Although the Endangerment Finding in itself does not place requirements on industry, it is an important step in the EPA’s process to develop regulation.

f. Update to Corporate Average Fuel Economy (CAFE) Standards
On May 19, 2009, President Obama issued a requirement to automakers to increase fuel efficiency of cars manufactured in the United States to 35.5 miles per gallon (mpg) by 2016, four years ahead of the schedule set by the Energy Independence and Security Act of 2007. The new CAFE standards incorporate stricter fuel economy standards promulgated by the State of California, which are discussed further in Section A.2.b below, into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent. Rule-making to adopt these new standards is still in process and thus these standards are not yet in effect.

2. State Laws and Regulations
a. Senate Bill 527
Senate Bill (SB) 527, approved October 11, 2001, requires the California Climate Action Registry to coordinate with the State Energy Resources Conservation and Development Commission to adopt industry-specific GHG reporting metrics. The bill requires separate reporting of direct and indirect emissions by participants in the California Climate Action Registry, and re-
quires the Registry to periodically report the number of participating organizations, the percentage of total State emissions represented by participants, and any GHG reductions achieved by participating organizations. Under SB 527, the responsibilities of the California Climate Action Registry are adjusted to meet State goals to promote voluntary reporting and reduction of GHG emissions. The bill defines the terms “annual emissions results,” “baseline,” “certification,” “emissions,” “emissions inventory,” “greenhouse gases,” “material,” and “de minimis emissions” as they pertain to climate change, the California Climate Action Registry and the California Air Resources Board (CARB).

b. Assembly Bill 1493
Assembly Bill (AB) 1493 (Pavley) of 2002 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 CO2. In late 2007, the EPA denied California’s waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the State brought suit against the EPA related to this denial.

In January 2009, President Obama instructed the EPA 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 EPA 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 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.

c. Senate Bill 812, Chapter 423, Statutes of 2002
SB 812 requires the California Climate Action Registry to cooperate with the CARB to develop and adopt protocols for reporting and certification of GHG emissions reductions from forestry conservation and conservation-based management projects. This bill also requires the registry to develop protocols for reporting and certifying GHG reduction projects of participants.

d. Senate Bill 1078/Senate Bill 107/Executive Order S-21-09—Renewable Portfolio Standard
Established in 2002 under SB 1078, and accelerated in 2006 under SB 107, California’s Renewable Portfolio Standard (RPS) obligates investor-owned utilities, energy service providers and community choice aggregators to procure an additional 1 percent of retail sales per year from eligible renewable sources until 20 percent is reached, no later than 2010. The California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are jointly responsible for implementing the program.
In September, 2009, Governor Schwarzenegger issued Executive Order S-21-09 directing CARB to adopt regulation by July 31, 2010 requiring a RPS goal of 33 percent by 2020.

e. Executive Order S-3-05 – Greenhouse Gas Emission Reduction Targets
In 2005, Governor Schwarzenegger issued California Executive Order S-3-05 establishing the following GHG emission reduction targets for California:
- Reduce GHG emissions to 2000 levels by 2010.
- Reduce GHG emissions to 1990 levels by 2020.
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

Executive orders are binding only to State agencies. Accordingly, Executive Order S-3-05 will guide State agencies’ efforts to control and regulate GHG emissions but have no direct binding effect on local efforts.

f. Executive Order S-01-07-Low Carbon Fuel Standard
Executive Order S-01-07 was enacted by Governor Schwarzenegger on January 18, 2007. The Order mandates the following:
- A statewide goal be established to reduce the carbon intensity of California’s transportation fuels by at least 10 percent by 2020.
- A Low Carbon Fuel Standard (LCFS) for transportation fuels be established in California.

In response, CARB adopted a LCFS standard in April 2009 and is currently considering implementing regulations for the LCFS.

g. Senate Bill 97 Chapter 185, Statutes of 2007 and Office of Planning and Research Guidelines
SB 97 requires that the Governor’s Office of Planning and Research (OPR) prepare guidelines to submit to the California Resources Agency regarding the analysis and mitigation of GHG emissions in CEQA documents and feasible mitigation of GHG emissions or the effects of GHG emissions as required by CEQA.
Consistent with SB 97, OPR released a Technical Advisory on CEQA and Climate Change, which was developed in cooperation with the Resources Agency, California EPA, and CARB. The Technical Advisory offered informal interim guidance regarding the steps lead agencies should take to address climate change in their CEQA documents until CEQA guidelines are developed pursuant to SB 97 on how State and local agencies should analyze, and when necessary, mitigate GHG emissions.

According to the technical advisory, lead agencies should determine whether GHGs may be generated by a proposed project, and if so, quantify or estimate the GHG emissions by type and source. In addition, the lead agency must assess whether those emissions are individually or cumulatively significant. When assessing whether a project’s effects on climate change are cumulatively considerable, even though its GHG contribution may be individually limited, the lead agency must consider the impact of the project when viewed in connection with the effects of past, current, and probable future projects. Finally, if the lead agency determines that the GHG emissions from the project as proposed are potentially significant, it must investigate and implement ways to avoid, reduce, or otherwise mitigate the impacts of those emissions.

OPR released proposed changes in the CEQA Guidelines on April 13, 2009, requiring inclusion of GHG analyses in CEQA documents, quantification of emissions, determination of a threshold, and if significant emissions would occur, adoption of mitigation to address significant emissions. The OPR-proposed guideline changes do not include a quantitative threshold. Although CARB and local air districts are considering potential CEQA thresholds, to date they have not adopted formal thresholds. Based on OPR’s recommendations, the California Resources Agency initiated formal rulemaking on July 3, 2009, for certifying and adopting these amendments pursuant to Public Resources Code Section 21083.05. If adopted, the proposed amendments would become effective on January 1, 2010.
h. Senate Bill 1368 – Greenhouse Gas Emissions Performance Standards
In 2006, SB 1368 was signed into law. The bill limits long-term investments in baseload generation by the State’s utilities to power plants that meet an emissions performance standard (EPS) jointly established by the CEC and CPUC.

i. California’s Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24)
The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in Title 24, Part 6, of the California Code of Regulations (CCR) 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. New standards were adopted by the Commission in 2001 as mandated by AB 970 to reduce California’s electricity demand. The new standards went into effect June 1, 2001. The standards have saved an estimated $56 billion in electricity and natural gas costs since 1978 and are projected to result in an additional $23 billion in savings by 2013.²

j. Global Warming Solutions Act of 2006 (AB 32)
AB 32, the Global Warming Solutions Act of 2006, codifies the State’s GHG emissions target by directing CARB to reduce the State’s global warming emissions to 1990 levels by 2020. CARB regulations are required to begin phasing in by 2012. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, CPUC, and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State’s main strategies to reduce GHGs from business-as-usual emissions projected for 2020 to 1990 levels. Business-as-usual (BAU) is the pro-

jected emissions for 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. It requires CARB and other State agencies to develop and adopt regulations and other initiatives reducing GHGs by 2012.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons of carbon dioxide equivalent (MMTCO₂e) as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit.

CARB is also conducting rulemaking, culminating in rule adoption by January 1, 2011 for reducing GHG emissions to achieve the emissions cap by 2020. The rules must take effect no later than 2012. In designing emission reduction measures, CARB must aim to minimize costs, maximize benefits, improve and modernize California’s energy infrastructure, maintain electric system reliability, maximize additional environmental and economic co-benefits for California, and complement the State’s efforts to improve air quality.

In addition, landfill gas capture and control was identified as an early adoption measure for AB 32, and CARB has proposed a rule requiring gas capture and collection for landfills having at least 450,000 tons of waste in place and establishing performance standards for systems already installed.

k. Transportation, Land Use, and the California Environmental Quality Act
On September 30, 2008, Governor Schwarzenegger signed into law SB 375 (Steinberg). SB 375 focuses on housing and transportation planning decisions to reduce fossil fuel consumption and conserve farmlands and habitat. This legislation is important to achieving AB 32 goals because GHG emissions
associated with land use, which includes transportation, are the single largest sector of emissions in California. Furthermore, SB 375 provides a path for improved planning by providing incentives to locate housing developments closer to where people work and go to school, allowing them to reduce vehicle miles traveled every year. Finally, SB 375 provides certain exemptions under CEQA law for projects that are proposed consistent with local plans developed under SB 375.

The first step in the implementation of SB 375 involves setting GHG reduction goals for regions throughout the state. These regions are to be defined by the borders of Metropolitan Planning Organizations (MPOs). CARB is currently coordinating a Regional Targets Advisory Committee (RTAC) to develop the GHG reduction goals, and they provided recommendations to CARB in 2009 that address methodologies, procedures and policies to establish the GHG goals. CARB must propose GHG reduction goals by June 30, 2010 and must finalize them by September 30, 2010.

1. AB 939, Titles 14 and 27
GHG emissions from landfills are regulated under AB 939, Titles 14 and 27. AB 939 mandates local jurisdictions to meet waste diversion goals of 25 percent by 1995 and 50 percent by 2000. In addition, AB 939 establishes an integrated statewide system for compliance and program implementation. Titles 14 and 27 contain detailed rules on daily operations, handling of specific waste types, monitoring, closure, and record-keeping.

3. Local Regulations and Policies
The Butte County Air Quality Management District (BCAQMD) does not currently have any regulations related to climate change mitigation or to the CEQA analysis of climate change.

Other Air Quality Management Districts have begun processes to establish thresholds of significance for climate change-related impacts.
The Sacramento Metro Air Quality Management District (SMAQMD) has released guidelines concerning climate change. The SMAQMD recommends that thresholds of significance for GHG emissions should be related to AB 32’s GHG reduction goals. For example, a possible threshold of significance could be to determine whether a proposed general or area plan’s emissions would substantially hinder the State’s ability to attain the goals identified in AB 32 (i.e. reduction of statewide GHG emissions to 1990 levels by 2020). In this example, a numeric GHG reduction target representative of 1990 levels, despite planned population and employment growth, should be adopted as a policy within the lead agency’s general or area plan. Emission reduction measures to achieve the target could then be developed within the general or area plan, or within a companion Climate Action Plan.

The Bay Area Air Quality Management District (BAAQMD) is in the process of updating its CEQA Air Quality Guidelines. The BAAQMD released the latest draft version of its revised CEQA Air Quality Guidelines in December 2009. For operational-related plan-level impacts, such as impacts from general or area plans, the BAAQMD recommends the following GHG significance thresholds: 1) Climate Action Plan for the plan area with a reduction goal consistent with AB 32 and meeting all CEQA requirements, or 2) a plan that achieves a GHG efficiency of 6.6 MTCO₂e per service population per year.

The San Joaquin Valley Air Pollution Control District (SJVAPCD) adopted GHG significance thresholds in December 2009 and concluded that the most appropriate option for development of a significant determination is implementation of Best Performance Standards or a reduction of emissions by 29 percent compared to business as usual (2002 to 2004) conditions.

In late 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for stationary source projects where the SCAQMD is lead agency. These interim thresholds will be used for determining significant impacts for proposed projects, and include a 10,000 annual MMTCO₂e threshold for sta-

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3 Service population is defined as the total of residents plus employment.
tionary sources. SCAQMD is considering a threshold for residential and commercial projects but has not formally proposed a threshold at this time.

B. Existing Conditions

This section discusses the existing conditions pertaining to GHG emissions in Butte County.

1. Global Warming/Climate Change

The phenomenon known as the greenhouse effect keeps the earth’s atmosphere near the surface warmer than it would be otherwise, allowing for successful habitation by humans and other forms of life. GHGs present in the earth’s lower atmosphere play a critical role in maintaining the earth’s temperature by trapping some of the longwave infrared radiation emitted from the earth’s surface which otherwise would have escaped to space, as shown in Figure 4.15-1. The primary naturally occurring GHGs are CO$_2$, water vapor (H$_2$O), CH$_4$, tropospheric ozone (O$_3$) and N$_2$O. Each is discussed in detail below.

The combustion of fossil fuels and deforestation release carbon, in the form of CO$_2$, into the atmosphere that historically has been stored underground in sediments or in surface vegetation. With the accelerated increase of fossil fuel combustion and deforestation since the industrial revolution of the 19th century, concentrations of GHGs have increased exponentially in the atmosphere. Increases in the atmospheric concentrations of GHGs in excess of natural ambient concentrations contribute to the enhancement of the natural greenhouse effect.

This enhanced greenhouse effect has contributed to global warming, which is an increased rate of warming of the earth’s surface temperature. Specifically, increases in GHGs lead to increased absorption of longwave infrared radiation by the earth’s atmosphere and warm the lower atmosphere further, increasing evaporation rates and temperatures near the surface. Warming of the earth’s lower atmosphere induces large-scale changes in ocean circulation.
patterns, precipitation patterns, global ice cover, biological distributions, and other large-scale changes to the earth system that are collectively referred to as climate change.

The Intergovernmental Panel on Climate Change (IPCC) has been established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC estimates that the average global temperature rise between the years 2000 and 2100 could range from 1.1°C, with no increase in GHG emissions above year 2000 levels, to 6.4°C,
with substantial increase in GHG emissions.\textsuperscript{4} Large increases in global temperatures could have massive deleterious impacts on natural and human environments.

Scientific studies, best represented by the IPCC’s periodic reports, demonstrate that climate change is already occurring due to past GHG emissions. Forecasting of future growth and related GHG emissions under BAU\textsuperscript{5} conditions indicates large increases in those GHG emissions accompanied by an increasing severity of changes in global climate. Thus, the best scientific evidence concludes that global emissions must be reduced below current levels.

The CEC recently released the following report: \textit{The Future is Now: An Update on Climate Change Science Impacts and Response Options for California}.\textsuperscript{6}

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\begin{quote}

\textsuperscript{5} “Business as usual” (BAU) conditions are defined as population and economic growth in the future using current (2009) building practices and current (2009) regulatory standards. For this EIR, reference to BAU conditions are specifically defined as including current mandatory requirements, such as Title 24 (Energy Efficiency Standards); current federal vehicle mileage standards; California AB 1493 vehicle emission standards; current renewable portfolio standards, including RPS (SB 1078 and SB 107) for California regulated utilities; current County water efficiency requirements; and other existing local and State requirements. BAU conditions presume no improvements in energy efficiency, water efficiency, fuel efficiency beyond that existing today or as required by existing (2009) statute. Specifically, BAU conditions do not include the GHG reduction measures included in the CARB Draft Scoping Plan from June 2008, which are not yet enacted in statute.

\end{quote}
\end{flushleft}
ronment; and underscore the increasingly urgent need for a dual approach to managing California’s climate change risks, in which GHG emissions are reduced to minimize and slow down global warming, and adaptation plans are prepared to deal with the impacts that are already underway and unavoidable.

The report details potential impacts in a variety of resource areas. These impacts include, but are not limited to, the following:

- Increased transmission of mosquito-borne diseases such as West Nile Virus and encephalitis.
- Decreased snowpack by the end of the century (20 to 40 percent under different emissions scenarios).
- Increased risk of winter flooding.
- Decreased hydropower generation (under dry warming).
- Decreased productivity of almonds, cotton and dairy products.
- Increased pest range and viability.
- Increased number of large wildfires by 12 to 53 percent statewide, depending on emissions scenario, with larger increases in Northern California.
- Likely sea level increase by up to 35 inches by 2100, depending on the magnitude of climate warming.
- Increased frequency and duration of extreme heat events.

2. Greenhouse Gases

GHGs are emitted by both natural and anthropogenic processes. GHGs include water vapor, CO₂, CH₄, N₂O, halogenated chlorofluorocarbons (HCFC), O₃, PFCs, SF₆, and HFCs. HCFCs, HFCs, PFCs, and SF₆ have no known natural sources, and their levels in the atmosphere are due entirely to human activities. Although CO₂, CH₄, and N₂O have natural sources, the rapid and significant increase in their atmospheric concentrations in recent
decades can be attributed with a high degree of certainty to human activities.\footnote{IPCC, 2007, \textit{Climate Change 2007: The Physical Science Basis}, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.} Some GHGs, such as water vapor, occur naturally and are emitted to the atmosphere through natural processes, as well as through human activities. Water vapor, although the most abundant GHG, is not included in the IPCC’s reports or those of other governmental entities focused on climate change because natural concentrations and fluctuations far outweigh anthropogenic influences.

Climate change is a global problem, and GHGs are global pollutants, making them substantively different than criteria air pollutants. Criteria air pollutants, such as \( \text{O}_3 \) precursors and toxic air contaminants (TAC), are pollutants solely of regional and local concern, and local concentrations respond to locally-implemented control measures. The long atmospheric lifetimes of GHGs allow them to be transported long distances from sources and to become well-mixed, unlike criteria air pollutants, which typically exhibit strong concentration gradients away from point sources.

To simplify reporting and analysis, methods have been set forth to describe emissions of GHGs in terms of a single gas, \( \text{CO}_2 \). The most commonly accepted method to compare GHG emissions is the global warming potential (GWP). The IPCC\footnote{IPCC, 2007, \textit{Climate Change 2007: The Physical Science Basis}, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.} defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalents (\( \text{CO}_2 \text{e} \)), which compares the gas in question to that of the same
mass of CO$_2$. CO$_2$ has a GWP of 1 by definition. Generally, GHG emissions are quantified in terms of metric tons of CO$_2$ emitted per year.

Table 4.15-1 lists the GWP of each GHG, as well as its lifetime and abundance in the atmosphere in parts per trillion (ppt). Units commonly used to describe the concentration of GHGs in the atmosphere are parts per million (ppm), parts per billion (ppb) and ppt, referring to the number of molecules of the GHG in a sampling of 1 million, 1 billion, or 1 trillion molecules of air. Collectively, HFCs, PFCs, and SF$_6$ are referred to as high global warming potential gases (HGWPG). CO$_2$ is by far the largest component of worldwide CO$_2$e emissions, followed by CH$_4$, N$_2$O, and HGWPGs, in order of decreasing contribution to CO$_2$e. Table 4.15-2 lists the anthropogenic contribution of GHGs in terms of CO$_2$e for the year 2004.

The GHGs determined by the IPCC as being released largely or entirely due to human activity, including CO$_2$, CH$_4$, N$_2$O, HFCs, PFCs, and SF$_6$, are explained in greater detail below, in order of abundance in the atmosphere.

a. Carbon Dioxide

CO$_2$ is the most important anthropogenic GHG and accounts for more than 75 percent of all anthropogenic GHG emissions. Its long atmospheric lifetime, on the order of decades to centuries, ensures that atmospheric concentrations of CO$_2$ will remain elevated for decades after GHG mitigation efforts to reduce GHG concentrations are promulgated.$^9$

Increasing concentrations of CO$_2$ in the atmosphere are largely attributable to emissions from the burning of fossil fuels, gas flaring, cement production, and land use changes. Anthropogenic emissions of CO$_2$ have increased concentrations in the atmosphere most notably since the industrial revolution. The

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Table 4.15-1  Lifetimes, Global Warming Potentials, and Abundances of Several Significant Greenhouse Gases

<table>
<thead>
<tr>
<th>Gas</th>
<th>Global Warming Potential (100 Years)</th>
<th>Lifetime (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂</td>
<td>1</td>
<td>50–200</td>
</tr>
<tr>
<td>CH₄</td>
<td>21</td>
<td>12</td>
</tr>
<tr>
<td>N₂O</td>
<td>310</td>
<td>114</td>
</tr>
<tr>
<td>HFC-23</td>
<td>11,700</td>
<td>270</td>
</tr>
<tr>
<td>HFC-134a</td>
<td>1,300</td>
<td>14</td>
</tr>
<tr>
<td>HFC-152a</td>
<td>140</td>
<td>1.4</td>
</tr>
<tr>
<td>CF₆⁺</td>
<td>6,500</td>
<td>50,000</td>
</tr>
<tr>
<td>C₂F₆⁺</td>
<td>9,200</td>
<td>10,000</td>
</tr>
<tr>
<td>SF₆</td>
<td>23,900</td>
<td>3,200</td>
</tr>
</tbody>
</table>


The concentration of CO₂ has increased from about 280 to 379 ppm over the last 250 years, an increase of over 35 percent. IPCC estimates that the present atmospheric concentration of CO₂ has not been exceeded in the last 650,000 years and is likely to be the highest ambient concentration in the last 20 million years.\(^\text{10}\)

Table 4.15-2  Global Anthropogenic Greenhouse Gas Emissions in 2004 by Sector

<table>
<thead>
<tr>
<th>Source</th>
<th>CO₂ Equivalent Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Supply</td>
<td>25.9</td>
</tr>
<tr>
<td>Industry</td>
<td>19.4</td>
</tr>
<tr>
<td>Forestry</td>
<td>17.4&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Agriculture&lt;sup&gt;b&lt;/sup&gt;</td>
<td>13.5</td>
</tr>
<tr>
<td>Transport&lt;sup&gt;c&lt;/sup&gt;</td>
<td>13.1</td>
</tr>
<tr>
<td>Residential and Commercial Buildings</td>
<td>7.9</td>
</tr>
<tr>
<td>Waste and Wastewater</td>
<td>2.8</td>
</tr>
</tbody>
</table>

<sup>a</sup> Includes deforestation, decomposition of above ground biomass remaining after logging, peat fires and decay of peat soils.

<sup>b</sup> Includes agriculture waste burning and savannah burning.

<sup>c</sup> Includes international transport but excludes fisheries and off-road vehicles.


Sinks of CO₂, which absorb, rather than produce CO₂, include uptake by vegetation and dissolution into the ocean. Worldwide GHG production greatly exceeds the absorption capacity of natural sinks and, as a result, concentrations of GHG in the atmosphere are on the rise.<sup>11</sup>

b. Methane

CH₄, the main component of natural gas, is the second largest contributor to anthropogenic GHG emissions and has a GWP of 25.¹²

Anthropogenic emissions of CH₄ are the result of growing rice, raising cattle, combusting natural gas, and mining coal.¹³ Atmospheric CH₄ has increased from a pre-industrial concentration of 715 to 1900 ppb in 2005.¹⁴

c. Nitrous Oxide

N₂O is a powerful GHG, with a GWP of 298.¹⁵ Anthropogenic sources of N₂O include agricultural processes, nylon production, fuel-fired power plants, nitric acid production and vehicle emissions. N₂O also is used in rocket engines, racecars, and as an aerosol spray propellant. Agricultural processes that


result in anthropogenic N₂O emissions are fertilizer use and microbial processes in soil and water.¹⁶

N₂O concentrations in the atmosphere have increased from pre-industrial levels of 270 to 320 ppb in 2005, an 18 percent increase.¹⁷

d. Hydrofluorocarbons
HFCs are human-made chemicals used in commercial, industrial and consumer products and have high GWPs.¹⁸ HFCs generally are used as substitutes for ozone-depleting substances (ODS) in automobile air conditioners and refrigerants. As seen in Table 4.15-1, the most abundant HFCs, in order from most abundant to least, are HFC-134a (35 ppt), HFC-23 (17.5 ppt), and HFC-152a (3.9 ppt).

e. Perfluorocarbons
The most abundant PFCs are CF₄ (PFC-14) and C₂F₆ (PFC-116). These human-made chemicals are emitted largely from aluminum production and semiconductor manufacturing processes. PFCs are extremely stable compounds that are destroyed only by very high-energy ultraviolet rays, which results in the very long lifetimes of these chemicals, as shown in Table 4.15-1.¹⁹


f. Sulfur Hexafluoride
SF₆, another human-made chemical, is used as an electrical insulating fluid for power distribution equipment in the magnesium industry, in semiconductor manufacturing and also as a trace chemical for study of oceanic and atmospheric processes. In 1998, atmospheric concentrations of SF₆ were 4.2 ppt and steadily increasing in the atmosphere.

SF₆ is the most powerful of all GHGs listed in IPCC studies, with a GWP of 22,800.

3. GHG Inventories
A GHG inventory is a quantification of all GHG emissions and sinks within a selected physical and/or economic boundary. GHG inventories can be performed on a large scale, such as for global and national entities, or on a small scale, such as for a particular building or person.

GHG emission and sink specifications are complicated by the fact that the natural processes may dominate the carbon cycle. Though some emission sources and processes are easily characterized and well understood, components of the way in which GHGs operate are not known with accuracy. As such, GHG protocols are currently under development and ad-hoc tools must be developed to quantify emissions from certain sources and sinks.

The following sections outline the global, national, and statewide GHG inventories to put into context the relative magnitude of the project-related emissions.

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a. IPCC Inventory
In the 2007 Intergovernmental Panel on Climate Change Synthesis Report, global anthropogenic GHG emissions were estimated to be 49,000 MMTCO₂e in 2004, which is 70 percent above 1970 emissions levels. CO₂ contributed to 76.7 percent of total emissions; CH₄ accounted for 14.3 percent; N₂O contributed 7.9 percent; and fluorinated gases (HFCs, PFCs, and SF₆) contributed to the remaining 1.1 percent of global emissions. Energy supply was the sector responsible for the greatest amount of GHG emissions at 25.9 percent, followed by industry at 19.4 percent, forestry at 17.4 percent, agriculture at 13.5 percent, and transport at 13.1 percent.²²

b. EPA National GHG Inventory
The EPA estimates that total US GHG emissions for 2007 amounted to 7,150 MMTCO₂e, which is 17 percent greater than 1990 levels.²³ US GHG emissions were responsible for 22 percent of global GHG emissions in 2007.²⁴ Table 4.15-3 summarizes the contribution of each GHG to total US GHG emissions in 2007, based on CO₂e. The largest contributors to US GHG emissions in 2007 by economic sector were the electric industry, transportation, and the industrial sector.²⁵


### Table 4.15-3  
**US GHG Inventory: 2007 Anthropogenic GHG Emissions (CO₂ equivalent) by Source Gas**

<table>
<thead>
<tr>
<th>Gas</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂</td>
<td>85.4</td>
</tr>
<tr>
<td>CH₄</td>
<td>8.2</td>
</tr>
<tr>
<td>N₂O</td>
<td>4.4</td>
</tr>
<tr>
<td>HFCs, PFCs, and SF₆</td>
<td>2.10</td>
</tr>
</tbody>
</table>


Total US GHG emissions in 2007 were 1.4 percent above the 2006 total.²⁶ Figure 4.15-2 presents 2007 US GHG emissions by gas.

Total emissions growth from 2006 to 2007 was largely the result of a 75.9-MMTCO₂e increase in CO₂ emissions. There were larger percentage increases in emissions of other GHGs, but their absolute contributions to total emissions growth were relatively small: 13.0 MMTCO₂e for CH₄, 8.2 MMTCO₂e for N₂O, and 5.6 MMTCO₂e for high-GWP gases.²⁷

The increase in US CO₂ emissions in 2007 resulted primarily from two factors: unfavorable weather conditions, which increased demand for heating


and cooling in buildings; and a drop in hydropower availability that led to greater reliance on fossil fuel energy sources such as coal and natural gas for electricity generation, increasing the carbon intensity of the power supply.\(^{28}\) \(\text{CH}_4\) emissions increased in the energy, waste management, and agriculture sectors. In addition, \(\text{N}_2\text{O}\) emissions from 2006 to 2007 increased.\(^{29}\) This increase is attributed primarily to an increase in corn production and a decrease in soy production between 2006 and 2007 in the United States, since corn production produces relatively more \(\text{N}_2\text{O}\) than soy production. However, despite this short-term trend, \(\text{N}_2\text{O}\) emissions from this source have not


shown any long-term trend as the N₂O emissions are highly sensitive to the amount of nitrogen applied to soils, to weather patterns, and to crop type, each of which varies considerably, depending on local conditions.³⁰

c. California Statewide GHG Inventory
CEC’s Inventory of Greenhouse Gas Emissions and Sinks: 1990–2004 estimates that California is the second-largest state emitter of GHG emissions in the United States, behind Texas in absolute emissions. 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 CO₂ and is responsible for approximately 2 percent of the world’s CO₂ emissions.³¹

CARB released estimates of California’s 1990 emissions inventory, which amounted to 433.29 MMTCO₂e.³² CARB has also estimated that 2006 emissions levels were 483.87 MMTCO₂e. 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 MMTCO₂e. As shown in Figure 4.15-3, 2006 GHG emissions for California were apportioned to the following sectors: 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 GWP gases (3.1 percent), agriculture (6.2 percent) and forestry (0.04 percent).


d. Butte County Emissions
The 2006 GHG inventory for Butte County is provided in Table 4.15-4 and a brief discussion provided in this section. Additional discussion of the current inventory as it compares to the 2020 and 2030 GHG forecast can be found in Section D. Full methodology and a detailed discussion of the inventory and forecast are included in Appendix F.

In 2006, GHG emissions in Butte County totaled 601,266 MTCO₂e. On-road vehicles contributed 295,750 MTCO₂e, or 49.2 percent, and off-road equipment contributed an additional 6.8 percent, or 40,939 MTCO₂e. 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. Industrial sources (stationary sources) related to the burning of other fuels or fugitive emissions accounted for 4,093 MTCO₂e, or 0.7 percent. Waste gen-
erated 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. Emissions from this source are included for informational purposes only and are not included in the total GHG emissions for the County. Waste currently in place at the Neal Road Recycling and Waste Facility will result in 14,247 MTCO\(_2\)e in the form of landfill methane that year; this is 2.4 percent of the 2006 total. The burning of fuel to power agricultural equipment in 2006 contributed 77,019 MTCO\(_2\)e; this is roughly 10 percent of the on-road vehicle emissions and 12.8 percent of the county total for 2006.

**C. Standards of Significance**

As discussed above, the State of California has not yet adopted any specific standards of significance for GHG impacts. As with any environmental impact, lead agencies must determine what constitutes a significant impact. In the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a significant impact, individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice.

However, preliminary guidance from OPR, the California Resources Agency, the Attorney General and other State entities indicates that CEQA review documents must consider two fundamental questions regarding climate change:

- What is the impact of the GHG emissions of a project?
- What is the impact of climate change on the project?

Climate change is the result of cumulative global emissions. There is no single project, when taken in isolation, that can “cause” global warming because a single project’s emissions are insufficient to change the radiative balance of the atmosphere. Because global warming is the result of GHG emissions, and GHGs are emitted by innumerable sources worldwide, global climate change
### Table 4.15-4  Butte County Greenhouse Gas Emissions Estimate, 2006

<table>
<thead>
<tr>
<th>Source</th>
<th>GHG Emissions (MTCO(_2)e)</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Road Vehicles</td>
<td>295,570</td>
<td>49.2</td>
</tr>
<tr>
<td>Off-Road Vehicles and Equipment</td>
<td>40,939</td>
<td>6.8</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>62,241</td>
<td>10.3</td>
</tr>
<tr>
<td>Electricity</td>
<td>106,977</td>
<td>17.8</td>
</tr>
<tr>
<td>Stationary sources</td>
<td>4,093</td>
<td>0.7</td>
</tr>
<tr>
<td>Landfills (Waste in Place)</td>
<td>14,247</td>
<td>2.4</td>
</tr>
<tr>
<td>Single Year (Future Waste Commitment)(^a)</td>
<td>17,873</td>
<td>Not included</td>
</tr>
<tr>
<td>Agricultural Vehicles and Equipment</td>
<td>77,019</td>
<td>12.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>601,266</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

\(^a\) Uses 2008 data and assumes all waste was deposited at facilities with a gas capture system.


is a significant cumulative impact of human development and activity. The global increase in GHG 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. Thus, the discussion below references analysis of cumulative contributions to a significant global impact.

On a State level, AB 32 identified that an acceptable level of GHG emissions in California in 2020 is 427 MMTCO\(_2\)e, which is the same as the 1990 GHG emissions level. This level is also approximately 15 percent less than current
GHG emissions and approximately 28 percent less than projected 2020 BAU conditions.33

In order to achieve these GHG reductions, there will have to be widespread reductions of GHG emissions from sources in many various sectors across the California economy. Some of those reductions will need to come from the existing sources of emissions in the form of changes in vehicle emissions and mileage, changes in the sources of electricity, and increases in energy efficiency by existing residential, commercial, industrial and agricultural development, as well as other measures. In the upcoming years, the State will be adopting comprehensive regulations to reduce the GHG emissions from vehicles, industry, buildings and other sources. These regulations are expected to play a major part in reaching the goal of reducing currently projected 2020 emissions levels by 15 percent compared to current levels.

While County actions can help to promote GHG reductions from the existing economy, existing development is not under the discretionary land use authority of the County, and thus most of these reductions will come as the result of State and federal mandates. The remainder of the necessary GHG reductions will need to come from requiring new development to have a lower carbon intensity than BAU conditions. County land use discretion can substantially influence the GHG emissions from new development.

In terms of determining whether GHG emissions in Butte County will be cumulatively considerable, this EIR evaluates whether Butte County is doing its part to ensure that California, cumulatively, meets the AB 32 target. CARB specifically recommended in the adopted Scoping Plan that municipalities adopt a goal of reducing emissions by 15 percent compared to current levels.34 While there can and likely will be variation in how much reduction each city, county or region can realistically achieve by 2020, on the average


34 California Air Resources Board, December 2008, AB 32 Scoping Plan.
each jurisdiction must reduce emissions by approximately 15 percent compared to current conditions.

For the purposes of this EIR, General Plan 2030 and the ALUCP override would result in a cumulatively considerable contribution if GHG emissions in 2020 associated with unincorporated Butte County are greater than 85 percent of current GHG emissions. If they are, Butte County would contribute considerably to global GHG emissions and related climate change effects. If the emissions of new development allowed by General Plan 2030, combined with the on-going emissions of existing development, are less than 85 percent of current GHG emissions, then General Plan 2030 would not contribute considerably to global GHG emissions and related climate change effects.

Although the General Plan planning horizon is in 2030, this EIR only analyzes emissions to the 2020 horizon for several reasons. First, the State has only established legal mandates out to the year 2020 that apply to the entire state. Although Executive Order S-03-05 established goals for 2050, executive orders only apply to the agencies of State government and do not establish a mandate for local government or private actions. Second, there will need to be further GHG emission reductions beyond 2020 worldwide in order to avoid the more catastrophic aspects of unchecked climate change. The means to affect substantial reductions beyond 2020 are not clearly defined and will depend to a large extent on the ability to stop the rise in emissions and start to reduce emissions as soon as possible. Thus, the 2020 goal is an interim goal that will need to be revisited in future planning at the County and State level, but the basis for establishing a 2030 goal will need to be developed over time. In the mitigation measures described in Section F, a process is suggested to ensure adoption of a 2030 goal and a 2030 reduction plan prior to 2020.

A certain amount of environmental change is inevitable in Butte County due to current GHG emissions and unavoidable future increases in GHG emissions worldwide. Change on a local basis to Butte County agriculture, water supplies, flooding, wildfire potential, environmental health, and other areas is reasonably foreseeable, although not necessarily unquantifiable in all aspects
as present. New development allowed by General Plan 2030 could place persons and property at higher levels of risk to climate change effects if they do not anticipate reasonably foreseeable changes in environmental conditions.

Thus, for this EIR, the proposed project would result in a cumulatively considerable contribution to a significant impact if development allowed by General Plan 2030 and the ALUCP override is unprepared for reasonably foreseeable environmental changes that will occur due to climate change, and thus subject property and persons to additional risk of physical harm related to flooding, public health, wildfire risk and other impacts.

For the purposes of this EIR, General Plan 2030 and the ALUCP override would result in a cumulatively significant contribution to climate change if they would:

- Result in GHG emissions that do not achieve a 15 percent reduction from current levels by 2020.
- Subject property and persons to additional risk of physical harm related to flooding, public health, wildfire risk and other impacts resulting from climate change.

D. Impact Discussion

The following discussion provides an analysis of the project’s cumulative contribution to GHG emission and climate change impacts that could occur as a result of implementation of General Plan 2030. In addition, this discussion includes an analysis of the potential GHG emissions from residential land uses that would be allowed in the ALUCP area under the ALUCP override, which is a very small fraction of the projected 2030 buildout that would contribute to GHG emissions.

In addition, a summary of the 2006 GHG inventory and 2030 projection is included, as well as a brief description of the methodology used for the inven-
1. Methodology
An inventory of existing GHG emissions was prepared for the inventory year, which is 2006. A GHG emissions forecast was prepared accounting for development allowed within unincorporated Butte County as part of General Plan 2030. For existing and future 2030 scenarios, GHG emissions were estimated from the following general sectors: transportation; electricity and natural gas consumption related to new residential, commercial, and industrial development; stationary sources; waste; and agricultural vehicles and equipment. A separate inventory was not performed for County government operations. Appendix F of this EIR contains a detailed description of the technical approach used to develop the inventory and 2030 forecast.

2. Project Impacts
a. Result in GHG emissions that do not achieve a 15 percent reduction from current levels by 2020.

The assessment of GHG emissions in this section is based on a quantitative analysis of impacts resulting from the projected 2030 buildout of General Plan 2030. The estimate of GHG emissions in 2020 is based on projected 2030 buildout, adjusted to the year 2020. As discussed below, General Plan 2030 and the ALUCP override will result in cumulatively considerable GHG emissions that exceed the significance criteria noted above.

GHG emissions for the inventory year 2006 and projections for 2020 and 2030, including development allowed by General Plan 2030, are shown in Tables 4.15-4 and 4.15-5. Current emissions are summarized in Section B.3.d and compared with projected emissions below.

Population growth and associated development in Butte County will result in additional GHG emissions primarily from on-road vehicles, electricity and natural gas consumption by homes and businesses, and increased emissions associated with landfilling of solid waste. The overall balance of GHG emissions...
emissions and sinks in Butte County is also impacted by the conversion of agricultural, wild or timber land to urban land. GHG emissions due to land use change were not quantified here for the reasons discussed below in Section D.2.a.viii.

The following subsections describe projected emissions in specific sectors. Each subsection discusses relevant General Plan 2030 policies aimed at reducing GHG emissions. Additional policies that are included in Section D.2.a.ix

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address focusing growth in a limited number of communities that can provide services, jobs and housing in order to reduce vehicle miles traveled and limit the conversion of agricultural land to residential and commercial development.

The impact significance determination is provided in Section D.2.a.xi. As discussed in detail below, although the proposed General Plan policies and actions provide a comprehensive framework for reducing GHG emissions, they do not ensure that the County can meet the reduction goal. Thus, this EIR concludes that buildout under the General Plan will result in a cumulatively significant and unavoidable impact related to greenhouse gas emissions.

i. Transportation Emissions (On-Road and Off-Road Vehicles and Equipment)
New residential, commercial, industrial, and public service development, a consequence of population growth in the unincorporated county that would be accommodated under General Plan 2030, will induce growth in annual vehicle miles traveled (VMT). GHG emissions are proportional to fuel consumed for on-road transportation. As described in Appendix F, the EMFAC model (EMFAC 2007) was used to estimate average fuel economy for various vehicle types in 2020 and 2030 as well as the expected fleet mix for Butte County in 2020 and 2030. The results of the EMFAC 2007 modeling indicate that vehicular traffic within Butte County with implementation of General Plan 2030, without consideration of incorporated municipality or adjacent county growth, would increase CO2e emissions by 2020 and 2030. Emissions from vehicular traffic in 2020 would increase above 2006 levels by 59,636 MTCO2e, or approximately 20 percent, and emissions in 2030 would increase above 2006 levels by 98,508 MTCO2e, or approximately 33 percent. These projected vehicle emissions do not account for future legislative actions that would reduce emissions.

Forecast emissions that do account for measures included in the AB 32 Scoping Plan are shown in parentheses in Table 4.15-5. Given recent legislative and legal action on national and statewide fuel economy standards, which are discussed further in Section A, significant increases in fuel economy beyond
AB 1493 for future scenarios seem likely, but are not accounted for in the GHG forecast presented in Table 4.15-5. The GHG emissions from on-road traffic are based on data provided by the traffic engineer. The VMT estimates provided by the traffic model for current and future year included “pass-through” trips, i.e. trips that are likely not due to Butte County residents and do not originate or terminate within Butte County.

AB 1493 (Pavley I standards) has already been adopted by the California legislature. Taking into account the adopted AB 1493 standards for GHG emissions and anticipated strengthening of these standards (Pavley II)\(^{35}\) in the future, there could be a reduction of 31.7 MMT CO\(_2\)e from light duty vehicles by 2020,\(^{36}\) a reduction of roughly 14 percent from the transportation sector as compared to the 2020 BAU projection. This reduction has also been applied to the 2030 mobile source emissions, even if it is likely that reductions by 2030 could be larger. In April 2009, CARB approved a low carbon fuel standard that will reduce GHG emissions from vehicles by an additional 6.7 percent beyond Pavley by 2020, based on data in the AB 32 Scoping Plan. Therefore, the increased emissions from on-road vehicles for 2020 would be 281,466 MTCO\(_2\)e instead of 355,386 MTCO\(_2\)e, and the increased emissions for 2030 would be 312,252 MTCO\(_2\)e instead of 394,258 MTCO\(_2\)e. Projected emissions from mobile sources in 2020 and 2030, including the Pavley and low carbon fuel standard, are shown in parentheses in Table 4.15-5.

Emissions also result from the operation of off-road vehicles and equipment, including recreational equipment, lawn and garden equipment, construction and mining equipment, light commercial equipment, industrial equipment, airport ground equipment, equipment associated with rail yards and oil drilling, and pleasure crafts. Agricultural equipment is discussed separately in Section D.2.a.vii below. GHG emissions from off-road equipment in 2006

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\(^{35}\) Although Pavley II standards have not been formally adopted, they are quantified in the AB32 Scoping Plan. They will be considered by CARB in 2010.


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4.15-36
were 40,939 MTCO\textsubscript{2}e. These emissions are estimated to be 51,105 MTCO\textsubscript{2}e in 2020 and 63,695 MTCO\textsubscript{2}e in 2030. The low carbon fuel standard will affect vehicles of all types, as opposed to the Pavley standards, which are targeted only at light duty vehicles. \textit{Reductions in future off-road vehicle GHG emissions due to the implementation of the low carbon fuel standard are shown in parentheses.}

The proposed General Plan 2030’s transportation policies related to reduction of GHGs support public transportation and alternative transportation modes and reduce vehicle miles traveled. Specific circulation-related General Plan 2030 policies are discussed below.

Policies CIR-P2.1, CIR-P2.2, and COS-P1.7, and Action COS-A1.6 provide specific measures to encourage carpooling and trip reduction. Policy CIR-P2.4 encourages employers to provide transit subsidies, bicycle facilities, telecommuting and other options to reduce commute trips. Policy CIR-P2.5 states that transit funding shall be prioritized relative to street and road construction and maintenance. Policy COS-P1.7 requires that new commercial and institutional development projects provide prioritized parking for car- pools. Action COS-A1.6 directs the County to cooperate with the school districts to develop school access plans that substantially reduce automobile trips to schools and surrounding congestion.

Policies under Goal CIR-3 promote alternative modes of transportation. Policies CIR-P3.1 and CIR-P3.3 support improved connections to regional transportation services and an integrated, coordinated, and balanced multi-modal transportation system. Policy CIR-P3.2 requires that a safe, continuous, integrated and accessible pedestrian network be provided in urbanized areas to encourage walking, which will support replacement of vehicle trips with walking and bicycling. Policies CIR-P3.4 and CIR-P3.5 encourage new development to provide for alternative modes of transportation and pedestrian, bicycle, and multi-use facilities that integrate circulation and recreational use. Policy CIR-P3.6 requires that new neighborhoods provide bike and pedestrian connectivity between streets. Policy CIR-P3.9 requires that public fa-
facilities be located and designed to allow for convenient access from public transit and/or bicycle and pedestrian facilities.

Policies under Goal CIR-4 support public transit. Policy CIR-P4.1 supports public transit as a viable and attractive alternative to the use of single occupant motor vehicles. Policy CIR-P4.2 supports improved public transit service. Policy CIR-P4.3 supports public transportation programs that promote access to shopping, employment, education, healthcare, and recreation. Policy CIR-P4.6 requires that new development in areas served by existing or planned transit provide fixed transit facilities such as bus shelters and pull-outs, according to expected demand.

Policies under Goal CIR-5 support bicycling as a viable transportation mode. Policy CIR-P5.3 directs the County to integrate the bicycle system with other transportation modes by connecting bicycle routes and transit stops, providing secure bicycle parking facilities, and supporting efforts to expand accommodation of bicycles aboard buses. Policy CIR-P5.5 requires that construction or expansion of major arterials incorporate Class II bicycle facilities whenever feasible and consider Class III Bike routes where appropriate.

Policies and actions in the Conservation and Open Space Element promote fuel efficiency. Specifically, Policy COS-P1.7 requires that new commercial and institutional development projects provide prioritized parking for electric vehicles, hybrid vehicles, and alternative fuel vehicles. Action COS-A1.5 directs the County to prepare an anti-idling ordinance that will reduce idling by heavy duty vehicles.

In addition, the General Plan 2030 Land Use Element helps to reduce VMT through the land use map and policies. In particular, high density and intense uses are directed to the areas surrounding the incorporated municipalities on the land use map, and much of the outlying areas are designated for agriculture. In support of the land use map, Policy LU-P15.1 directs the County to prevent scattered development patterns and focus development in existing urbanized areas and within unincorporated communities, and in particular
areas that have access to public services and infrastructure. Policy LU-P1.9 directs the County to allow commercial services and retail within unincorporated communities. Policy LU-P15.2 requires that new urban development be primarily located in or immediately adjoining already urbanized areas. Policy LU-P4.3 directs higher density housing along collector and arterial streets and within easy walking distance of public facilities. Policy LU-P15.3 encourages efficient urban infill development within municipal limits, municipal spheres of influence (SOIs), and existing unincorporated communities where development can readily be served by public infrastructure facilities. Finally, Policy LU-P8.3 encourages development on sites served by existing public facilities to develop at the highest allowable density and intensity.

The proposed Land Use Element also includes policies related to growth boundaries, which encourage infill development. Specifically, Goal LU-13 and its associated policies maintain the Chico Greenline, which limits urban expansion west of Chico. In addition, Policy LU-P2.4 directs the County to engage willing and interested unincorporated communities in community planning processes to set a community vision, which may include the development of urban growth boundaries, community boundaries and SOIs.

ii. Natural Gas

In the context of this inventory, direct energy consumption refers to natural gas usage in homes and businesses for heating, cooking or other purposes. These emissions are direct because the burning of natural gas takes place directly at the facility (i.e., homes and businesses), as opposed to at an off-site power plant. Emissions associated with fossil fuels burned to produce electricity are discussed in the Section D.2.a.ii and are described as “indirect emissions.”

New buildings allowed by General Plan 2030 would consume natural gas for heating, cooking, and other processes. In 2006, direct energy consumption comprised 10.3 percent of the GHG budget for the county. By 2020, residential, commercial and industrial development allowed by General Plan 2030
would result in estimated new annual CO\textsubscript{2} emissions of 75,668 metric tons, and by 2030, 87,167 metric tons.

There are no policies in General Plan 2030 that specifically address natural gas consumption. However, numerous policies and actions address energy conservation as a whole, and these are discussed in Section D.2.a.iii, below.

**iii. Electricity**

New buildings allowed by General Plan 2030 would also consume electricity. Using the 2006 emission factors for current energy providers in Butte County, by 2020, residential and commercial development allowed by General Plan 2030 would result in an estimated increase in annual indirect GHG emissions of 23,078 MTCO\textsubscript{2e} related to electricity under BAU conditions. This is a 22 percent increase above current conditions. In addition, by 2030, residential and commercial development allowed by General Plan 2030 would result in an estimated increase in annual indirect GHG emissions of 42,842 MTCO\textsubscript{2e} related to electricity under BAU conditions, which is a 40 percent increase above current conditions.

The AB 32 Scoping Plan, which is discussed in Section A.2.j, and Executive Order S-21-09, which is discussed in Section A.2.d, call for an increase in Renewable Portfolio Standards (RPS) to 33 percent by 2020, which is estimated to result in a 15.3 percent reduction in GHG emissions compared to current conditions. Taking into account the adopted SB 1078/SB 107 RPS standards, GHG emissions related to electricity consumption in the project area in 2020 and 2030 are 110,157 MTCO\textsubscript{2e} and 126,896 MTCO\textsubscript{2e}, respectively, as shown in parentheses in Table 4.15-5.

GHG emissions due to the consumption of electricity in California are controlled by a variety of factors and vary considerably from year to year. The carbon intensity of electricity consumed in Butte County is related to the ratio of power produced within California to that purchased from out of state sources. Currently, power produced within California is of a lower carbon intensity than the national average. During years when California power
providers must purchase a larger portion of power from outside the state, the associated GHG emissions are higher. Factors influencing the ability of in-state power availability to meet instate demands include water resources for hydropower and peak summer temperatures. Even if California power providers significantly increase the portion of renewable power within their portfolio, the true GHG reductions from year-to-year may largely depend on power demand in the state.

General Plan 2030 includes numerous policies and actions that promote the development of alternative energy and conservation of energy within Butte County.

Policies and actions under Goal COS-2 promote green building, planning and business. Policy COS-P2.2 requires new development to comply with Green Building Standards adopted by the California Building Standards Commission. Policy COS-P2.3 requires all new County buildings to meet LEED-Silver or an equivalent rating system and to use these buildings to demonstrate green building practices to builders, developers, and homeowners. Policy COS-P2.4 encourages all new subdivisions and developments to meet green planning standards. In addition, Action COS-A2.1 directs the County to design and publish handouts and web-based information describing green building practices and explaining relevant County permitting approval processes, Action COS-A2.2 directs the County to develop and publicize a certified green business/institution program, Action COS-A2.3 directs the County to develop and adopt incentives for the construction of green building, and Action COS-A2.4 directs the County to train all plan review and inspection staff in green building materials, techniques and practices. In addition, Action COS-A2.5 directs the County to prepare and adopt a Green Building Ordinance within 24 months of the adoption of the General Plan 2030.

Policies and actions under Goal COS-3 promote a sustainable energy supply. Policies COS-P3.1 and COS-P3.2 encourage the expansion and increased efficiency of hydroelectric power plants and the development of renewable fuel
sources in the county, provided that such plants and fuel sources can be expanded and developed without degrading the natural environment and that any significant adverse environmental impacts associated with such plants can be successfully mitigated. Policy COS-P3.4 encourages solar-oriented and renewable design and grid-neutral development. Policy COS-P3.5 requires developers to give homebuyers the option of having renewable heat and power incorporated into new homes. Policy COS-P3.6 requires that alternative energy sources continue to be used for County facilities. In addition, Action COS-A3.1 directs the County to prepare an Alternative Energy Promotion Study.

Policies under Goal COS-4 promote energy efficiency. Policy COS-P4.1 promotes and rewards energy efficiency efforts of local businesses. Policy COS-P4.3 requires that new development meet the guidelines of the California Energy Star New Homes Program, or equivalent, and demonstrate detailed energy conservation measures. Policy COS-P4.4 requires that site and structure designs for new development projects maximize energy efficiency.

General Plan 2030 also includes other policies and actions related to renewable energy and energy conservation. Economic Development Action ED-A1.1 recommends that, as part of a countywide economic development plan, the County promote sustainable business and new economic opportunities related to renewable energy. Policy ED-P2.7 supports programs and projects that utilize agricultural by-products for green building material production and/or renewable energy production. Circulation Element Policy CIR-P2.5 requires that transportation corridors for renewable energy transmission be preserved. In addition, Action COS-A1.3 directs the County to consider contractual assessment programs in addition to AB 811 that promote the installation of renewable power systems by residential and commercial property owners.

iv. Stationary Sources
Currently, 1,400 acres are used for industrial purposes in unincorporated Butte County. Sectors that drive the industrial activities in Butte County
include agriculture, oil, gas, and timber; these sectors also support manufacturing, transportation and warehousing.\textsuperscript{37} Small industrial and commercial complexes, such as feed or machinery sales, well-drilling services, spray operations, and food processing, are also dispersed throughout the area. Data for permitted stationary sources within Butte County indicate that industrial process emissions in 2006 are 4,093 MMCO\textsubscript{2}e,\textsuperscript{38} and account for 0.7 percent of the 2006 inventory.

New industries allowed by General Plan 2030 would consume fossil fuels, thereby emitting GHGs. Specific industrial processes may also release GHGs in addition to those related to the burning of fuel. The specific nature of new industrial development is unknown; however, an estimate of industrial emissions in 2030 was made by scaling the current industrial GHG emissions by the projected 2030 buildout for the proposed project. Based on this projection, there would be an increase of industrial facilities by 21 percent by 2020 and 35 percent by 2030. Thus, increased GHG emissions in 2020 and 2030 due to new growth are estimated to be 4,906 MTCO\textsubscript{2}e and 5,540 MTCO\textsubscript{2}e, respectively. Currently, industrial emissions account for 0.7 percent of Butte County’s inventory and are projected to remain a small portion of 2020 and 2030 GHG emissions.

General Plan 2030 includes policies that would help to reduce GHG emissions from industrial development. Land Use Element Policy LU-P8.1 requires that industry be located near major transportation facilities, and Policy LU-P8.4 encourages new industrial development to be located within existing industrial use areas until such areas have been fully utilized. Policy LU-P5.2 requires that industrial and heavy commercial uses be grouped into industrial parks. Policy LU-P5.3 requires that new industrial uses be designed to reduce

\textsuperscript{37} Dun & Bradstreet and the Center for Economic Development at California State University, Chico, 2009, \textit{Business/Organization Sales in Unincorporated Butte County}.

\textsuperscript{38} Lusk, David, Butte County Air Quality Management District, personal communication with Margaret Williams, ICF Jones & Stokes, September 17, 2009.
adverse impacts on neighboring land uses by reducing noise, air quality, water quality, biological, agricultural, vibration and dust related impacts.

v. Waste – Landfill Emissions (Waste in Place)
Organic waste, when placed in a landfill, is initially decomposed by aerobic bacteria. After oxygen has been depleted, anaerobic bacteria continue to break down waste. The products of this process support CH₄-producing bacteria, which consume remaining waste byproducts to produce a mixture of roughly 50 percent CH₄ and 50 percent CO₂. CO₂ produced through the decomposition of solid waste is considered biogenic in origin and is not included in the 2006 inventory or 2020/2030 projection. However, as described in Section B.2.b, above, CH₄ is a GHG and is the second largest contributor to anthropogenic GHG emissions. This section considers CH₄ emissions from landfills in Butte County.

GHG emissions from landfills are the result of the decay of waste produced over many years; the waste is not necessarily produced within the jurisdiction where the landfill is located. The Local Government Operating Protocol recommends that a landfill be included in a jurisdiction’s inventory if it solely owns and operates the facility, even if the facility receives waste from many other jurisdictions. The Neal Road Recycling and Waste Facility (Neal Road Facility) is included in this evaluation of the county’s emissions because the facility is owned and operated by Butte County.

Development allowed by General Plan 2030 would result in increased generation of waste that would require disposal in landfills, resulting in an increase

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in CH₄ emissions. Currently, 100 percent of waste generated in unincorporated Butte County remains in Butte County and is deposited at the Neal Road Facility.  

The Neal Road Facility opened in 1965, is scheduled to close in 2033, and contains two disposal pits, one of which was filled and closed in 2004. The second pit opened in 2005 and will have a gas to energy system installed and operational by 2011. The system is expected to produce 4.5 megawatts of electricity when completed. The Neal Road Facility currently has a gas flaring system installed that reduces CH₄ emissions by roughly 75 percent from emissions in the absence of a gas capture system.

Future emissions from waste in place were estimated according to current per capita waste generation and population growth rates for the region. For all emissions from landfilled waste, a 75 percent collection efficiency was applied. For the inventory year, 2006, GHG emissions from the Neal Road Facility are estimated to be 14,247 MTCO₂e and comprise 2.4 percent of the total 2006 GHG budget. GHG emissions in 2020 are projected to be 21,295 MTCO₂e and comprise 3.0 percent of the 2020 GHG budget. GHG emissions in 2030 are projected to be 27,232 MTCO₂e and comprise 3.4 percent of the 2020 GHG budget.

Given the current and planned implementation of landfill gas capture and use of waste-to-energy technology in the future, future waste disposal may not contribute substantial amounts of CH₄. However, until full capture and re-

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42 Mannel, Bill, Butte County Public Works Department, personal communication with Margaret Williams, ICF Jones & Stokes, September 24, 2009.


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use of landfill gas is achieved, there will be increased emissions associated with additional waste disposal.

General Plan 2030 includes policies and actions that help to reduce GHG emissions from landfills. Action COS-A1.7 directs the County to upgrade methane capture systems at the Neal Road Facility to achieve a minimum 75 percent methane removal efficiency, with a goal to progress toward 90 percent methane removal efficiency when practicable. Public Facilities and Services Element Policy PUB-P9.1 encourages Butte County residents, businesses and industries to reduce the use of non-biodegradable and nonrecyclable materials. Policy PUB-P9.2 promotes technologies that benefit Butte County and that allow the use of solid waste as an alternative energy source, including biomass or biofuels. Policy PUB-P9.3 requires that innovative strategies be employed to ensure efficient and cost-effective solid waste and other discarded materials collection, disposal, transfer, and processing. Finally, Policy PUB-P11.4 directs the County to use post-consumer recycled paper and other recycled materials for County operations whenever possible. In addition, Action PUB-A9.2 directs the County to distribute public education materials on solid waste source reduction, recycling and composting, and the proper handling of household hazardous waste.

In addition, as indicated in Section A.2.j and A.2.l, landfill emissions are regulated under AB 939, Titles 14 and 27, and CARB has proposed a rule requiring gas capture and collection for landfills having at least 450,000 tons of waste in place and establishing performance standards for systems already installed.

**vi. Waste - Single Year (Future Waste Commitment)**

Since waste deposited in a landfill will remain in the landfill for many years, GHG emissions from solid waste can also be represented in terms of the methane commitment of a single year’s waste that is generated by a particular jurisdiction. These GHG emissions occur over the lifetime of the waste, regardless of where the waste is deposited, and are a direct reflection of current patterns and practices within a jurisdiction. As indicated in Section D.2.a.v,
emissions from waste in place at the Neal Road Facility were included in the inventory and projection, consistent with the Local Government Operating Protocol. Since inclusion of both a single year snapshot of a jurisdiction’s waste and waste in place emissions would be “double-counting,” emissions from a single year’s waste are included in the inventory for informational purposes only. Although included in the inventory total, landfill emissions may not offer much mitigation potential, particularly for landfills with landfill gas to energy (LFGTE) systems already in place, as is the case at the Neal Road Facility. However, indirect, population-based emissions may reveal opportunities for cost-effective mitigation options aimed at reducing the waste generated in residences and businesses. The single year emissions estimate is included for this purpose.

In 2008, data from the California Integrated Waste Management Board indicate that Butte County produced 66,468 tons of waste, resulting in 17,873 MTCO\(_2\)e over the lifetime of the waste. The projected 2030 buildout for the proposed project indicates that there would be an increase in the unincorporated county’s population by 33,600 people, or roughly 40 percent, by 2030. Assuming per capita waste generation remains constant, the unincorporated portion of Butte County will produce 80,806 tons of solid waste in 2020 and 93,085 tons of solid waste in 2030. If all of this waste is placed in landfills with energy recovery systems, the resulting methane or GHG commitment of the waste is 21,729 MTCO\(_2\)e for waste generated in 2020 and 25,030 MTCO\(_2\)e for waste generated in 2030.

As discussed in Section D.2.a.v, the Conservation and Open Space and Public Facilities and Services Elements of General Plan 2030 contains policies and actions designed to provide safe, sanitary and environmentally acceptable solid waste management services, as well as to reduce non-biodegradable waste in general and convert waste to energy.

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44 2006 data was not available for this source type.
vii. Agricultural Emissions
Agriculture is the dominant land use within unincorporated Butte County, accounting for approximately 599,040 acres, or 60 percent of the area of the unincorporated county. As described in Appendix F, GHG emissions from agricultural equipment and vehicles were estimated using the OFF-ROAD model. Agricultural vehicle and equipment emissions in 2006 were 77,019 MTCO\(_2\), or approximately 12.8 percent of emissions associated with on-road vehicles. In 2020, GHG emissions from agricultural equipment are estimated to be 76,025 MTCO\(_2\), and in 2030, 75,870 MTCO\(_2\). Accounting for reductions associated with implementation of the low carbon fuel standard reduces these emissions to 70,931 MTCO\(_2\) and 70,787 MTCO\(_2\) in 2020 and 2030, respectively.

This analysis only quantified agricultural emissions associated with agricultural vehicles and equipment. Agricultural GHG emissions are also related to enteric fermentation, livestock manure management, and other crop management practices, but are not quantified in this EIR. Quantitative estimates of emissions associated with rice cultivation, fertilizer usage, livestock and other agriculture practices were not included in this inventory due to analytical limitations, since such estimates must be based on detailed information regarding fertilizer type and usage and day-to-day practices that vary substantially from farm to farm depending on size, location and primary crops or livestock. Although these emissions are not included in the inventory, they should be considered in future inventories as methodology for assessing these emissions improves and site specific agricultural data availability increases. In the United States overall, agriculture represents 8.6 percent of the nation’s total GHG emissions, including 80 percent of its nitrous oxide emissions and 31 percent of its methane emissions.\(^{46}\)

Rice is one of the three most land-intensive crops in Butte County, which, along with walnuts and almonds, account for a third of the county’s total agricultural acreage. According to a UC Davis study on rice cultivation in

California, Butte County had nearly 100,000 acres devoted to rice in 1996.\textsuperscript{47} CH\textsubscript{4} is produced during flooded rice cultivation by the anaerobic (without oxygen) decomposition of organic matter in the soil. Flooded soils are ideal environments for CH\textsubscript{4} production because of their high levels of organic substrates, oxygen-depleted conditions, and moisture. Nationwide, rice cultivation resulted in the release of 6.2 MMTCO\textsubscript{2}e in 2007.\textsuperscript{48} Emissions vary considerably depending on soil conditions, farming practices and climate. As noted above, emissions from this source were not quantified for this inventory.

As noted above, GHG emissions associated with agricultural water use were not quantified in this analysis. However, energy is consumed in the transport, storage and treatment of water, which results in GHG emissions. The County updated its water resource inventory in 2008 as part of the Integrated Water Resources Plan (IWRP). The IWRP indicates that the majority of the water demand in Butte County occurs in the valley areas due to the concentration of urban populations and farming. Agricultural water needs constitute 71 percent of the total demand in all of Butte County, including the incorporated municipalities.\textsuperscript{49}

Historically, the County has not experienced water shortages in normal years, but has occasionally had shortages in specific areas, such as the southwest portion of the county, in dry years. Several statewide climate change


impact studies\textsuperscript{50,51} indicate that California will experience reduced water resources as a consequence of climate change. However, the specific change in water supplies in Butte County has not been assessed and will depend on the balance of hydrologic changes, such as precipitation levels and types and evapotranspiration, as well as storage conditions. Due to the large portion of State resources devoted to agriculture, future GHG inventories should address the impact of agricultural water use on regional GHG emissions, as well as the impact of climate change on water resources in the region.

The proposed General Plan 2030 includes agricultural policies that can act to reduce GHG emissions; these are generally focused around water and resource conservation, conservation of agriculture lands from transformation to urban uses, and promotion of sustainable agriculture.

Policies under Goal AG-2 aim to protect agricultural land from conversion to non-agricultural uses. In particular, Policy AG-P2.1 directs the County to work with the Local Agency Formation Commission (LAFCO) to create and maintain a consistent approach to the conservation of agricultural land through the designation of reasonable and logical SOI boundaries. Policy AG-P2.6 directs the County to retain and protect agricultural lands through the use of proactive land use techniques, such as clustered development and density bonuses.

In addition, Policy AG-P3.1 directs the County to use the existing local working group process to cooperate with the Natural Resource Conservation Service to provide support to farmers regarding conserving water, planting drought-tolerant crops, and protecting natural resources. Policy AG-P3.2 supports existing efforts to educate and encourage farmers to use agricultural


methods that reduce or minimize use of pesticides, herbicides, and manufactured fertilizer.

Furthermore, Policy COS-P1.6 directs the County to recognize and promote the emerging market for agricultural producers to provide carbon sequestration services.

**viii. Emissions Associated with Land Use Changes**

Development allowed by General Plan 2030 would result in the conversion of natural vegetation and agricultural lands to other land uses such as residential and commercial. Since natural vegetation and agricultural lands can act as carbon sinks, this land conversion could result in a loss of carbon sinks. However, given the uncertainties associated with estimating GHG fluxes from natural vegetation and agricultural lands, the potential loss of carbon sinks associated with land conversion was not quantified. Furthermore, the impact of increasing or decreasing the extent of timberlands in the region was not quantified because the County does not exert discretionary land use authority over the permitting of timber operations. Such authority is under State jurisdiction for private lands and under federal jurisdiction for federal lands.

A number of General Plan 2030 policies seek to limit the amount of natural land conversion due to urban growth. Land use policies in General Plan 2030 that would result in reduced GHG emissions generally support higher density development in the urban areas and placing jobs close to transit. Specific land use-related policies are discussed below.

Policy LU-P1.1 directs the County to protect and conserve land that is used for agricultural purposes. Policy LU-P15.1 directs the County to prevent scattered development patterns and focus development in existing urbanized areas and within unincorporated communities, and in particular areas that have access to public services and infrastructure. Policy LU-P1.5 directs the County to conserve timber resources.
In addition, Policy LU-P15.2 requires new urban development to be primarily located in or immediately adjoining already urbanized areas. Policy LU-P4.3 requires higher density housing to generally be located along collector and arterial streets and within easy walking distance of public facilities. Policy LU-P8.1 requires industry to be located near major transportation facilities. Policy LU-P15.3 encourages efficient urban infill development within municipal limits, municipal SOIs, and existing unincorporated communities where development can readily be served by public infrastructure facilities.

Finally, policies under Goal LU-13 maintain the Chico Area Greenline, which limits urban development in the Chico area. In particular, Policy LU-P13.1 maintains the Chico Area Greenline, and Policy LU-P13.5 requires that all land use on the Agricultural Side of the Chico Area Greenline consist solely of agricultural land uses, except for Rural Residential uses provided for on the land use map.

ix. GHG Emissions from Additional Sources not Quantified
In addition to the sources described above, GHG emissions can result from embodied emissions associated with water usage and conveyance, material manufacture and transport outside of the county, timberland management, and fertilizer consumption. Emissions associated with land use change are discussed in Section D.2.a.viii. Emissions and/or carbon sinks were not quantified from these sources due to a lack of appropriate standard methodologies at this time. As scientific understanding of carbon cycling through these sources improves, methodologies for quantifying these sources and carbon sinks in local-scale inventories will become available. They are discussed herein qualitatively.

Policies in General Plan 2030 that aim to reduce GHG emissions from sectors not specifically quantified in this inventory, but that may address the inventory categories listed above, are discussed below.
a) Water Resources Element
General Plan 2030’s water resources-related policies related to GHG emissions reductions support water conservation and increased recycling of water. Specifically, Policy W-P4.1 promotes agricultural and urban water use efficiency. Policy W-P4.3 directs the County to work with municipal and industrial water purveyors to implement water conservation policies and measures. Policies W-P4.4 and W-P4.5 promote opportunities to recover and utilize wastewater for beneficial purposes. Policy W-P4.6 requires new development to adopt best management practices for water use efficiency and demonstrate specific water conservation measures. Policy W-P4.7 requires County facilities to adopt water conservation measures and when appropriate retrofit existing facilities.

b) Conservation and Open Space Element
General Plan 2030’s conservation and open space-related policies related to GHG emissions reductions support decreased GHG emissions, increased open space, tree conservation, alternative energy, and energy efficiency. Conservation and open space-related General Plan 2030 policies and actions are discussed below.

Policies and actions under Goal COS-1 aim to reduce GHG emissions. Policy COS-P1.1 requires GHG emission impacts from proposed projects to be evaluated as required by CEQA, and Policy COS-P1.2 requires new development projects to mitigate GHG emissions on-site or as close to the site as possible. In addition, Action COS-A1.1 directs the County to, within one year of adoption of General Plan 2030, coordinate with regional agencies to develop a Climate Action Plan, which, in combination with other existing policies and regulations by other agencies and business sectors of the economy, would reduce GHG emissions in the county to a level that would comply with State guidelines. The action also lists specific components that shall be included in the Climate Action Plan.

In addition, Policy COS-P7.2 encourages clustered development patterns to conserve natural areas, and Policy COS-P11.1 supports State and federal legis-
lation designed to protect timber resources and promote sustainable timber production.

c) Public Facilities and Services Element

As discussed in Section D.2.a.v, the General Plan 2030 Public Facilities and Services Element includes policies that promote water conservation and efficiency, which saves pumping energy, and waste reduction and recycling, which reduces landfill-related GHG emissions and emissions associated with goods fabrication. In addition, Policy PUB-P1.2 requires County facilities to be designed, constructed, and operated to be environmentally sustainable and beneficial to the community and the region.

x. Area Plan Policies

The following area, neighborhood and specific plans have already been adopted, and will remain as separate, stand-alone documents with the adoption of General Plan 2030. These plans include policies that would further address GHG emissions, in addition to those proposed in General Plan 2030 discussed above.

♦ Durham-Dayton-Nelson Area Plan. This Area Plan was adopted in 1992 and covers the unincorporated communities of Durham, Dayton and Nelson in west-central Butte County. Goal 4, Policy 4 of the Area Plan directs the County to foster a compact rather than a scattered development pattern. Goal 8, Policy 1 directs the County to concentrate future residential uses within or near the existing developed communities. Goal 8, Policy 3 directs the County to establish appropriate growth guidelines that will achieve a balance and relationship between urban expansion and the natural environment.

♦ Chapman/Mulberry Neighborhood Plan. This Neighborhood Plan was adopted in 1999 for the Chapman/Mulberry area, which includes two unincorporated “islands” located within the Chico urban area. The Plan’s Neighborhood Design and Buffer Policy 3 requires that the urban forest of the neighborhood be preserved and expanded. Circulation Policy 5 requires that a pedestrian and bicycle circulation plan be implemented, and that it be developed within the community park and pro-
provide for both internal and external linkages. Circulation Policy 6 directs County Transit and Chico Area Transit to cooperate to ensure that public transit routes and stops are available to and within the Chapman/Mulberry Neighborhood, and that where possible, stops are designed with turn-outs that minimize disruption of traffic flow.

♦ North Chico Specific Plan. This Specific Plan was adopted in January 1995, and encompasses 3,590 acres bounded by Sycamore Creek to the south, Highway 99 to the west, Rock Creek to the north and the Chico Municipal Airport to the east. The Plan’s Circulation Policy 5 requires that the arterial street design provide for bus turnouts and for the location of bus shelters. Circulation Policy 7 encourages non-vehicular access throughout the Plan area and to the commercial and industrial areas by requiring the construction of sidewalks, pedestrian and bicycle paths, and bicycle parking facilities.

♦ Stringtown Mountain Specific Plan. This Specific Plan, adopted in September 1994, addresses design criteria and development standards for the future development of a health resort and residential community in the foothills east of Oroville, at Highway 162 and Forbestown Road. The Plan’s Pedestrian Circulation Policy 1 requires that all sub-areas within the Plan be designed to facilitate pedestrian cross-connections to adjacent uses and access to the area-wide trail system. Pedestrian Circulation Policy 2 requires bicycle racks within the commercial areas that are visible from the entry. Energy Conservation Policy 1 encourages tree planting and maintenance in all parking areas to ensure that, within 15 years of planting, at least 50 percent of the parking area is shaded at midday during the summer season. Energy Conservation Policy 2 requires deciduous trees, which aid summer cooling and allow solar gain for winter heating, to be used around buildings and parking areas. Energy Conservation Policy 3 and Utilities Policy 5 require all cost-effective energy conservation and peak usage reduction measures required by Title 24 to be incorporated in building and development design. Energy Conservation Policy 4 requires that subdivisions and other new development be designed to facilitate solar use where feasible and given physical constraints of the area.
xi. Impact Significance Determination

Many of the policies identified in the proposed General Plan 2030 related to land use, agriculture, water resources, circulation, open space and conservation, and public services could reduce GHG emissions from the baseline emissions that would occur in the absence of these policies; reductions associated with these policies have not been quantified or accounted for in the BAU projection.

As shown above in Table 4.15-5, GHG emissions in Butte County under BAU conditions would result in 2020 emissions that are 18.8 percent higher than current 2006 GHG emissions, without consideration of currently adopted programs, including AB 1493 and SB 1078/SB 107. With consideration of currently adopted programs at the State level, and with no further action on the part of the County, GHG emissions would be 1.8 percent more than current 2006 emissions in 2020 and 14.3 percent less than the 2020 BAU projection. This amount exceeds the significance threshold of 15 percent below current GHG emissions and demonstrates that further action is required for the County to meet its fair share of the statewide AB 32 reduction goal.

In addition, GHG emissions in Butte County under BAU conditions would result in 2030 emissions that are 33.6 percent higher than current 2006 GHG emissions, without consideration of currently adopted programs. With consideration of currently adopted programs at the State level and no further action on the part of the County, GHG emissions would be 14.6 percent more than current 2006 emissions in 2030.

Proposed General Plan 2030 policies and actions provide a comprehensive framework for reducing GHG emissions in the county. In particular, the Climate Action Plan requirements under Action COS-A1.1 would assist California in meeting the reduction goals for 2020 that are embodied in AB 32, and would ensure that GHG emissions in Butte County would not contribute considerably to cumulative GHG emissions and associated climate change effects. However, until the Climate Action Plan is fully developed, it cannot be assured that all measures to achieve the needed GHG reduction are feasi-
ble. Furthermore, although Action COS-A1.1 requires that the County update the Climate Action Plan by 2020 to include reduction measures to achieve the adopted 2030 reduction goal, State action beyond 2020 is uncertain as there are no adopted State plans to achieve reductions beyond 2020. Thus, even if the County were to achieve its stated 2030 reduction goals, given the limitations on County authority (e.g. lack of authority over vehicle emissions), GHG emissions in the county would still contribute considerably to 2030 cumulative emissions. Therefore, the proposed project would have a significant GHG emission impact.

b. Subject property and persons to additional risk of physical harm related to flooding, public health, wildfire risk and other impacts resulting from climate change.

The assessment of climate change in this section is based on a spatial analysis of impacts resulting from implementation of General Plan 2030. Existing and new development and the natural environment in Butte County will be subject to climate change impacts resulting from past, present, and future GHG emissions, regardless of the success of local, State, national, or international efforts in reducing future GHG emissions. Due to the existing concentrations of GHG emissions in the atmosphere and the inevitable additional emissions before GHG reductions plans provide reductions, a known amount of warming in the lower atmosphere and consequent changes in historical climate patterns will inevitably occur.52

Changes to Butte County agriculture, water supplies, flooding, wildfire potential, environmental health, air quality and other areas are reasonably foreseeable, although not quantifiable in some aspects at present. New development allowed by General Plan 2030 could place persons and property at higher levels of risk to climate change effects if it does not anticipate reasona-

bly foreseeable changes in environmental conditions. Without further planning, current requirements may provide inadequate protection against adverse physical impacts and may not anticipate changed conditions resulting from climate change.

A recent report from the CEC uses a range of emissions scenarios developed by the IPCC to project a series of potential warming ranges with temperature increases from 3.0 to 10.5 degrees Fahrenheit. The report also analyzes impacts associated with a specific warming scenario of 2.2 degrees Fahrenheit, the level of warming that would result if industrialized nations reduced their emissions by 30 percent below 1990 levels before 2020, and the level of warming that guides numerous adopted and proposed policies. The report presents analysis of future climate in California under each warming range.

Based on this report, substantial temperature increases would result in a variety of impacts to the people, economy, and environment of California, including impacts related to public health, water resources, flooding, agriculture, forests and ecosystems, sea-level rise, growing energy demands, and vulnerability to the Sacramento-San Joaquin Delta. Sea level rise does not pose an immediate threat to Butte County due to its inland location and is not discussed further in this EIR, nor are specific impacts associated with the Delta. Anticipated impacts that will result from a warming of the lower atmosphere are described by sector below.

i. Public Health
Public health impacts associated with a changing climate depend not only on climatic conditions, but also on the specific populations in question and the community’s ability to deal with new stress. The most recent CEC-sponsored impacts report defines the measure of a community’s ability to

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respond to stresses and shocks as “social vulnerability.” Social vulnerability is projected to increase in California in coming decades regardless of climatic changes due to demographic changes in the state that will further stress the public health system.

Climate change could affect the health of county residents by increasing the frequency, duration, and intensity of conditions conducive to air pollution formation; increased frequency and intensity of heat-waves; and wildfires. Extreme heat events are particularly challenging for the elderly, infants, the infirm, and others exposed to relentless heat, such as agricultural laborers or people without access to cooling spaces and air conditioning. The primary concern is not the change in average climate, but rather the projected increase in extreme conditions or natural hazards that are responsible for the most serious health consequences, such as heat waves, drought and extremely poor air quality.

In general, urban areas and the southern portion of the state are projected to be most vulnerable to the increased frequency and duration of heat waves. However, climate model projections indicate that for the Butte County region, the duration of extreme heat events will increase at a rate of approximately 1 day per decade. Additionally, the frequency of heat waves is expected to increase in the region. From 1950 to 2000, a heat wave was experienced in approximately 40 percent of the years. The frequency is expected to increase to 80 percent before 2100. Residents in regions experiencing increased frequency and duration of extreme events may find it increasingly difficult to cope with climate-related stresses. In coming years, communities


may require additional public resources or actions to address this need and to avoid potential harm.

ii. Water Resources

Butte County’s water resources could be altered due to climate change. It is unknown at present whether climate change may lead to significant changes in precipitation within the county boundaries, which would affect the likelihood that water supplies would change. From a statewide perspective, water resource management in the face of climate change is among the largest challenges facing California. The combination of a growing population and increasingly unreliable surface water storage will tax delivery of water to residential, commercial, energy, environmental and agricultural sources. Currently, about 50 percent of water used in California for human consumption comes from groundwater, and intense scientific study is now focused on understanding the interplay of groundwater supplies, precipitation patterns, groundwater recharge, snowpack, and usage in California. The connectedness of the California water system renders Butte County potentially vulnerable to water scarcity in the future.

iii. Hydrology and Flooding

At present, it is uncertain whether areas like Butte County will experience increases, decreases, or no change in precipitation due to climate change. Atmospheric modeling at scales that can provide meaningful precipitation projections at the county level is an active area of research, and in coming decades, a better scientific foundation for forecasting this impact at the county level will likely be available. However, regional climate change modeling for northern California shows a decrease in precipitation falling as snow and an increase in rainfall during the winter, as well as an increase in the frequency of intense rainfall events. These conditions will heighten local flood risk. Furthermore, as reliability of the snowpack declines and snowmelt oc-

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curs earlier in the year, water managers must adapt infrastructure and procedures to capture and bank winter rainfall to avoid summer shortages.

Localized studies of potential changes in storm intensity have not been conducted for Butte County. On a broad level for California, there is a potential increase in the severity of winter storms due to climate change. If this were to occur, peak stream flows may increase, which would increase the risk of flooding beyond the existing risk levels in the county.

iv. Agriculture

Agriculture, along with forestry, is the sector of the California economy that may be most affected by a change in climate. In 2004, income from California agriculture accounted for 13 percent of the US total income. Currently, agricultural land uses account for 60 percent of the area of unincorporated Butte County. Agricultural lands in Butte County currently include field and row crops, orchards, rice, grazing, dry farming, and timber.

Crops vary in their vulnerability to various climate-related impacts, such as increasing temperature, declining water availability and reduced air quality. In general, agricultural impacts associated with a warming climate may include the following:

♦ Crop yield changes.
♦ Changes in crop types and cultivars.
♦ New weed invasions and expanded ranges of existing weeds.
♦ New pest invasions and expanded ranges of existing pests.
♦ Flooding and crop pollination changes.
♦ Heat waves and heat stress resulting in low crop quality and/or low crop yields, increased vulnerability to pests, increased animal vulnerability to disease, increased animal mortality, and decreased animal production.

The CEC recently released a report detailing specific climate change impacts to the agricultural sector.\footnote{California Energy Commission, August 2009, \textit{Economic Impacts of Climate Change on California Agriculture}, CEC-500-2009-043-F.} The CEC report focuses on impacts associated with increased temperatures by county and crop type, including decreased chill hours and lengthened growing season, and did not address water availability fluctuations associated with a changing climate, vulnerability to flooding, or changes in weed and pest ranges. The report also does not address embodied impacts associated with changes in California’s water supply or decreased air quality. In general, the report concluded that statewide profits from agriculture would not be negatively impacted by climate change, assuming water resources and farm prices remained constant. Both assumptions represent significant uncertainty in the study. Specifically, the study found that individual crops vary in their response to warmer temperatures. Of the 15 largest grossing crops in California, tomatoes, rice, oranges, lemons, food grapes, avocados and almonds are expected to show a decrease in annual crop value of production of between 2 and 50 percent. Walnuts, strawberries and wine grapes show no change in production value, while pistachios, lettuce, hay, cotton and broccoli show an increase in value of production of between 2 and 50 percent.

Regional analyses of climate trends over agricultural regions of California suggest that climate change is already in motion. The number of chill hours in California’s fruit growing region has been decreasing steadily since 1950, with the most significant decreases observed in the mid-Sacramento valley. Fruit quality and overall economic value is reduced when the minimum number of chill hours are not met. Conversely, the production of certain wine grapes is expected to benefit from a reduction in the number of chill hours, at least within certain ranges of warming. Statewide, degree-days, which is a measure of the growing season, are estimated to increase between 6 and 10 percent, depending on the season,\footnote{California Energy Commission, August 2009, \textit{Economic Impacts of Climate Change on California Agriculture}, CEC-500-2009-043-F.} but vulnerability to extreme heat...
events is also expected to rise. Elevated temperature may also impact livestock through increased mortality and decreased productivity.

v. 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. The wildfire season in the western United States has increased by 78 days since 1979.

In 2007, almost 66 million board feet of timber was produced in Butte County, with a value of over $16 million. Timber producing areas located predominantly in the eastern portion of the county will be increasingly at risk to wildfire damage in coming decades.

Recent research indicates that statewide occurrence of fire could increase by between 37 and 94 percent before 2085 depending on the level of global warming assumed. Additionally, as fires grow in size, they can result in stand-replacing burns that are too large for natural regeneration. Butte County relies on the timber industry as an economic generator. For both

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vi. Natural Ecosystems

Climate changes and increased CO₂ concentrations are expected to alter the extent and character of natural ecosystems: the distribution of species is expected to shift; the risk of climate-related disturbance such as wildfires, disease, and drought is expected to rise; and forest productivity is projected to increase or decrease, depending on species and region. In Butte County, these ecological changes could have significant implications for fire suppression, managed ecosystems, public health, and the sustainability of the county’s natural ecosystems.

A number of ecological changes have already occurred in the United States in response to changes in temperature and precipitation patterns, earlier spring arrival and later onset of fall. Ecosystem impacts in California can generally be described as the following: impacts on species that rely on temperature to dictate migration and reproduction; shifting of ranges of Sierra Nevada flora and fauna; increases in dry season and consequent increases in wildfire; and warming of the waters of Lake Tahoe.

Additionally, managed landscapes such as rangelands, timberlands and agricultural lands are especially vulnerable to changes in temperature and water availability. Changes in temperature and soil moisture can shift the suitable range for crops and timber species north or up-slope from current areas of cultivation. A recent study on Ponderosa pine in California examined historical data to show that between 1934 and 1996 on the western edge of the

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Sierra Nevada range, the western front of the forest had moved 4.4 miles east and shifted up roughly 637 feet in altitude. The study attributes the shift largely to climate change.

vii. Impact Significance Determination
As discussed in Sections D.2.b.i through D.2.b.vi, development allowed by General Plan 2030 could subject property and persons to additional risk of physical harm from climate change related to agriculture, public health and safety, wildfire risk, hydrology and flooding, water supplies, and natural ecosystems. However, Action COS-A1.1 directs the County to prepare a Climate Action Plan within one year of adoption of General Plan 2030, and requires that the Climate Action Plan include a Climate Change Preparedness Plan that will prepare for the impacts of climate change on the county’s economic and natural ecosystems and promote a climate-resilient community. In addition, General Plan 2030 includes numerous policies that protect agriculture, promote public health and safety, reduce wildfire risk, reduce risks from flooding, promote a sustainable water supply, and protect natural ecosystems. Therefore, General Plan 2030 would have a less-than-significant impact regarding exposure to risks of impacts resulting from climate change.

3. Cumulative Impacts
As discussed in Section C, climate change is the result of cumulative global emissions. There is no single project, when taken in isolation, that can “cause” global warming, as a single project’s emissions are insufficient to change the radiative balance of the atmosphere. Because global warming is the result of GHG emissions, and GHGs are emitted by innumerable sources worldwide, global climate change is a significant cumulative impact of human development and activity. The global increase in GHG emissions that has occurred and will occur in the future is the result of the actions and choices of individuals, businesses, local governments, states, and nations. Therefore, the analysis in Section D.2 addresses cumulative impacts.

E. Maximum Theoretical Buildout

Under the maximum theoretical buildout of General Plan 2030, there would be significantly more development than under the projected 2030 buildout analyzed in Section D, in terms of both the amount and the extent of development. As a result, GHG emission-related impacts would be more significant than described in Section D. However, as discussed in Chapter 3, it is unlikely that maximum theoretical buildout would ever occur under General Plan 2030, and an analysis of maximum theoretical buildout is not required by CEQA.

F. Impacts and Mitigation Measures

Impact CC-1: Implementation of General Plan 2030 would result in GHG emissions that would contribute to cumulative GHG emissions and global climate change. The 2020 GHG forecast for the county indicates that emissions would be greater than 85 percent of current (2006) conditions, creating a significant contribution to GHG emissions and associated climate change impacts. Policies and actions would provide a comprehensive framework for reducing GHG emissions in the county, but they would not ensure that the County can meet the reduction goal.

As part of the General Plan 2030 process, the County considered a wide range of policies and actions to reduce GHG emissions, and all feasible measures are included. However, they do not ensure that the County will meet its reduction goal, so the impact is considered cumulatively significant and unavoidable.
General Plan 2030 and the Airport Land Use Compatibility Plan (ALUCP) override have been described and analyzed in the previous sections with an emphasis on potentially significant impacts and recommended mitigation measures to avoid those impacts to the extent feasible. The State CEQA Guidelines also require the description and comparative analysis of a reasonable range of alternatives to the proposed project that could feasibly attain the objectives of the project.

The following discussion is intended to inform the public and decision-makers of project alternatives that have been developed, including the positive and negative aspects of those alternatives. In accordance with the CEQA Guidelines and procedures, three project alternatives, including the No Project Alternative, are discussed below. CEQA Guidelines also require that the environmentally superior alternative be identified. This information is included at the end of this chapter.

A. Alternatives Considered but Rejected for Further Analysis

In the initial phases of the General Plan 2030 process, the County held 19 public workshops and community meetings at various locations across Butte County in which members of the public provided input on land use changes that should be considered under General Plan 2030. Butte County also hosted a “City/County Summit” and held one-on-one meetings with each municipality in Butte County, during which municipal staff and officials provided suggestions about potential land use changes in unincorporated areas near their boundaries.

The three project alternatives evaluated in this chapter were developed during the subsequent phase of the General Plan 2030 process, during Meeting Series #2/3, Alternatives Finalization. During this phase, the County considered numerous other potential alternatives in various parts of the county. “Study areas,” in which potential changes to the existing land use designations should be considered, were identified. The public, Citizens Advisory Committee (CAC), municipal staff, County staff, and the consultant team identified 25
study areas, while landowners and developers identified 18 study areas. Different potential land use alternatives were suggested for each study area. At the conclusion of Meeting Series #2/3, the Board of Supervisors considered various alternatives for all 43 study areas, but decided that the existing land use designations in twelve of these areas should not change, and finalized 31 study areas in the unincorporated county for further consideration of appropriate land use alternatives.

B. Alternatives Considered in Detail in this EIR

Land use designations within the final set of 31 study areas from Meeting Series #2/3 are different in each of the three alternatives and General Plan 2030. Land use designations outside the 31 study areas are the same as General Plan 2030 designations under all three alternatives.

Prior to Meeting Series #4, Alternatives Evaluation and Selection, the County published the Butte County General Plan 2030 Alternatives Evaluation Report. The Report informed the public and decision-makers about constraints and opportunities associated with each land use alternative for each study area, examining topics related to transportation and circulation, fiscal impacts, agricultural impacts, water supply, wastewater infrastructure, biological resources (including the Butte Regional HCP/NCCP and migratory deer range), cultural resources, public services, and safety and hazards. This Report was used as a source of valuable information throughout Meeting Series #4, and informed the selection of the preferred land use alternative, which became the basis of the General Plan 2030 land use map.

The three alternatives are as follows:

♦ No Project Alternative. The proposed General Plan 2030 and the A-LUCP override would not be adopted, and the existing Butte County General Plan would remain in effect.

♦ Concentrated Growth Alternative. In this alternative, development would be directed toward the existing urban areas. Concentrated growth
would occur at a county-wide scale, in which little development occurs in outlying areas, which are instead designated for very low density residential, agriculture, and resource conservation. Meanwhile, higher density development would occur in and around the existing urban areas.

- **Rural Extension Alternative.** In this alternative, development would be distributed more widely throughout the county with less emphasis on the existing urban areas. Typically, outlying areas under this alternative would allow more dwelling units than under the Concentrated Growth Alternative, and densities are often lower in and around the existing urban areas. This alternative is considered because some participants in the General Plan 2030 process suggested that lower-density development would be likely to have less environmental impact.

For all three of the alternatives, assumptions about the rate and amount of residential and non-residential growth projected by the year 2030 are similar to those used for the proposed General Plan 2030 in Chapter 4 of this Draft EIR. The methodology used to estimate new residential units and new non-residential square footage for General Plan 2030 is described in Chapter 3. Where the three alternatives differ from the proposed General Plan and from each other is the location and distribution of the projected development, the mix of single-family and multi-family residential units, and the amount of agricultural, commercial, and industrial acres in the county.

Table 5-1, along with Figures 5-1, 5-2, and 5-3, summarize the level of development and illustrate the likely land use pattern for each alternative, while Table 5-2 summarizes the result of analyzing each alternative against the impact factors considered for General Plan 2030 and the ALUCP override, according to whether it would have a mitigating or adverse effect. This analysis is presented in greater detail in the following sections.
Table 5-1  PROJECTED 2030 BUILDOUT OF PROPOSED PROJECT AND CEQA ALTERNATIVES

<table>
<thead>
<tr>
<th></th>
<th>Proposed Project</th>
<th>No Project Alternative</th>
<th>Concentrated Growth Alternative</th>
<th>Rural Extension Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Dwelling Units</td>
<td>13,700</td>
<td>14,200</td>
<td>14,200</td>
<td>14,300</td>
</tr>
<tr>
<td>New Residents</td>
<td>33,800</td>
<td>35,100</td>
<td>35,100</td>
<td>35,300</td>
</tr>
<tr>
<td>New Retail/Office Space</td>
<td>1.8 million</td>
<td>0.5 million</td>
<td>2.0 million</td>
<td>2.5 million</td>
</tr>
<tr>
<td>(square feet)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Industrial Space</td>
<td>1.1 million</td>
<td>1.5 million</td>
<td>1.1 million</td>
<td>1.2 million</td>
</tr>
<tr>
<td>(square feet)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: DC&E, 2009.

C. The No Project Alternative

This section analyzes the No Project Alternative against General Plan 2030 and the ALUCP override.

1. Principal Characteristics

Under this alternative, the proposed General Plan 2030 and ALUCP override would not be adopted and the existing General Plan would remain in effect. Thus, new development would occur according to the existing General Plan land use designations, as well as the County’s existing General Plan policies.

The No Project Alternative differs from the proposed General Plan 2030 and ALUCP override in terms the amount of residential and non-residential growth proposed. The No Project Alternative would allow more residential and industrial development than the proposed project, but less commercial development, as shown in Table 5-1. The projected 2030 buildout of the No Project Alternative would be approximately:

♦ 14,200 new dwelling units
♦ 35,100 new residents
Agriculture/Timber Designations
- Orchard and Field Crops (5-ac to 40-ac minimum)
- Grazing and Open Land (40-ac to 160-ac minimum)
- Timber Mountain (40-ac to 160-ac minimum)

Residential Designations
- Foothill Area Residential (1 to 160 ac/du)
- Agricultural Residential (1 to 40 ac/du)
- Low Density Residential (up to 2 du/ac)
- Medium Density Residential (up to 13 du/ac)
- High Density Residential (up to 20 du/ac)

Commercial/Industrial Designations
- Commercial
- Sports and Entertainment
- Industrial

Other Designations
- Public
- Water

Source: Butte County GIS, 2009.
Agriculture/Timber/Conservation Designations
- Agriculture (20-ac to 320-ac minimum)
- Timber Mountain (160-ac minimum)
- Resource Conservation (40-ac minimum)
- Agriculture/Resource Conservation

Residential Designations
- Foothill Residential (1 to 40 ac/du)
- Agricultural Residential (1 to 40 ac/du)
- Rural Residential (up to 0.9 du/5ac)
- Very Low Density Residential (1 du/5 to 0.9 du/5ac)
- Low Density Residential (1 to 2.9 du/5ac)
- Medium Density Residential (3 to 5.9 du/5ac)
- Medium High Density Residential (6 to 13.9 du/5ac)
- High Density Residential (14 to 19.9 du/5ac)
- Residential Mix
- Residential/Resource Conservation

Commercial/Industrial Designations
- Mixed Use (4 to 20 du/ac and 0.5 maximum FAR)
- Retail and Office (0.4 maximum FAR)
- Recreation Commercial (0.4 maximum FAR)
- Industrial (0.4 maximum FAR)
- Research and Business Park (0.5 maximum FAR)
- Retail and Office/Industrial

Other Designations
- Public

Airports
- Greenline
- Highways
- Railroad
- Major Roads
- Sphere of Influence
- City/Town Limits
- County Boundary
Agriculture/Timber/Conservation Designations
- Agriculture (20-ac to 320-ac minimum)
- Timber Mountain (160-ac minimum)
- Resource Conservation (40-ac minimum)

Residential Designations
- Foothill Residential (1 to 40 ac/du)
- Agricultural Residential (1 to 40 ac/du)
- Rural Residential (up to 0.9 du/5ac)
- Very Low Density Residential (1 du/5 ac to 0.9 du/5ac)
- Low Density Residential (1 to 2.9 du/5ac)
- Medium Density Residential (3 to 5.9 du/5ac)
- Medium High Density Residential (6 to 13.9 du/5ac)
- High Density Residential (14 to 19.9 du/5ac)
- Residential Mix
- Residential/Resource Conservation

Commercial/Industrial Designations
- Mixed Use (4 to 20 du/ac and 0.5 maximum FAR)
- Retail and Office (0.4 maximum FAR)
- Recreation Commercial (0.4 maximum FAR)
- Industrial (0.4 maximum FAR)
- Research and Business Park (0.5 maximum FAR)
- Retail and Office/Industrial
- Industrial/Resource Conservation

Other Designations
- Public
- Planned Unit Development

Source: Butte County GIS, 2009.
### Comparison of Project Alternatives

<table>
<thead>
<tr>
<th>Impact Factors</th>
<th>No Project</th>
<th>Concentrated Growth Alternative</th>
<th>Rural Extension Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aesthetics</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Agriculture</td>
<td>-</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>Air Quality</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Biological Resources</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Geology, Soils and Mineral Resources</td>
<td>=</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>Hazards and Safety</td>
<td>-</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>Hydrology and Water Quality</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Land Use</td>
<td>-</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>Noise</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Population and Housing</td>
<td>=</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>Public Services and Recreation</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Transportation and Circulation</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Utilities and Infrastructure</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Greenhouse Gas Emissions</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>

++ Substantial improvement compared to the proposed project.
+ Insubstantial improvement compared to the proposed project.
= Same impact as proposed project.
- Insubstantial deterioration compared to the proposed project.
- - Substantial deterioration compared to the proposed project.

Note: Competing aspects within some factors would create both improvement and deterioration simultaneously for a single alternative. These trade-offs are discussed in the text.
In general, medium to high density residential designations are found near the incorporated municipalities and in the unincorporated rural communities. Scattered rural residential development could occur throughout the county in the Agricultural Residential and Foothill Residential land use designations. In addition, the agricultural and timber areas could be parcelized to lots as small as 5 and 40 acres, respectively, compared to a minimum of 20 to 160 acres under the proposed project, and single-family homes would be allowed on each legal parcel. The existing General Plan also allows for commercial uses near the incorporated municipalities and in many rural community centers. Industrial development is mainly allowed near the incorporated municipalities.

2. Impact Analysis
The No Project Alternative would have the following impacts relative to adoption of General Plan 2030 and the ALUCP override.

a. Aesthetics
The No Project Alternative would result in lower-density development scattered over a larger rural area compared to General Plan 2030, which could have a greater impact on scenic vistas. While growth under the No Project Alternative would be subject to existing County policies and regulations pertaining to scenic resources, including the Scenic Highway classifications and policies in the existing General Plan, the proposed project includes goals, policies, and actions that are more comprehensive and detailed than those in the existing General Plan. The proposed General Plan 2030 includes new policies and regulations not found in the existing General Plan to mitigate potential aesthetics impacts by:

♦ Requiring views of the county’s scenic resources to be maintained.
♦ Limiting ridgeline development near scenic resources.
♦ Preserving the integrity and stability of existing residential neighborhoods.
♦ Requiring light fixtures to minimize light pollution, glare and light trespass.

Because the No Project Alternative would result in more scattered development and would lack a comprehensive set of policies and regulations that address aesthetic impacts, the No Project Alternative would be a substantial deterioration compared to the proposed project.

b. Agriculture
The No Project Alternative would allow low-density residential development spread over a larger area of the county compared to General Plan 2030, particularly within the existing Agriculture Residential designation, which covers land that is currently being used for agriculture. Like the proposed project, the No Project Alternative would allow for conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use because it applies non-agricultural designations on some farmlands.

In addition, the land use designations under the existing General Plan would allow non-agricultural development on some parcels currently under Williamson Act contract. Although many parcels in the Agriculture Element of the existing General Plan are carried forward into the proposed General Plan 2030, the existing General Plan lacks other new policies and development standards proposed under General Plan 2030 to protect agricultural resources, including the larger minimum parcel sizes for agricultural zones and the elimination of the Agriculture Residential designation. Overall, the No Project Alternative would cause an insubstantial deterioration compared to the proposed project.

c. Air Quality
As previously discussed, the No Project Alternative would allow more residential and industrial development relative to the proposed General Plan 2030. However, it would allow less than one-third of the commercial development allowed under the proposed General Plan 2030. This discrepancy between residential and commercial development would result in an imbal-
ance between jobs and housing, meaning that residents of Butte County would have to commute out of the county to work, increasing emissions of air pollutants from vehicles.

The No Project Alternative would result in net increases of all criteria air pollutants when compared to the proposed project. These decreases can be attributed to a 0.5 percent increase in vehicle miles traveled under the No Project Alternative. As a result, the No Project Alternative would represent an insubstantial deterioration compared to General Plan 2030.

d. Biological Resources
The No Project Alternative would allow low-density residential development over a larger area of the county, including undeveloped land that has a higher potential of containing important biological resources that would be impacted by development. The regulations protecting biological resources in the existing General Plan would be insufficient to mitigate the impacts to biological resources to a less-than-significant level. The proposed project contains a comprehensive set of goals, policies, actions, and regulations that mitigate impacts to biological resources, including policies that require the following:

♦ Mitigation of impacts from new development in habitat areas for protected species.

♦ Setbacks and buffers along riparian corridors and adjacent to habitat for protected species.

♦ Construction barrier fencing.

♦ Construction employee training about on-site biological resources.

♦ Construction monitoring.

♦ A biological resources assessment for any proposed project where special-status species or critical habitat may be present and requiring mitigation if special-status species are found.
The No Project Alternative is therefore considered to be a substantial deterioration in relation to the proposed project.

e. Cultural Resources
The No Project Alternative would increase the amount of land that has the potential to develop compared to the proposed General Plan 2030. As a result, more land would be disturbed (e.g. excavated and graded) for construction activities, thereby increasing the potential for impacts to buried, previously unknown cultural resources. Under the No Project Alternative, statutory requirements protecting cultural resources would still be in effect, but General Plan 2030 policies and actions promoting cultural resource preservation and coordination with local tribes would not be adopted, including policies that require discretionary review for demolition permit applications on potentially important historic sites and that require the County to participate in a dialogue with local Native American tribes to collaborate on tribal land use plans, as well as actions that direct the County to seek funding for and conduct studies that would define the types and categories of historic and cultural resources in the county and to inventory known cultural resources. Overall, this alternative would be considered a substantial deterioration when compared to the proposed project.

f. Geology, Soils, and Mineral Resources
The No Project Alternative would result in a slightly greater number of new residents and new development, some of which would be subject to risk from geological and soils-based hazards, than the proposed General Plan 2030. However, development under the No Project Alternative would be subject to the same local, State and federal regulations as the proposed project; these regulations, as discussed in Section 4.6, Geology, Soils, and Mineral Resources, would reduce the potential for a geologic or soils-related impact to a less-than-significant level. As a result, the No Project Alternative would have essentially the same impact as the proposed project.
g. Hazards and Safety
The No Project Alternative would result in a larger amount of new residential and industrial development than the proposed General Plan 2030, and would therefore expose more people to hazards and hazardous materials. This alternative would include approximately 400,000 square feet more of industrial uses, which are more likely to transport, store, and emit hazardous materials that could be harmful to the public. New development under both the proposed project and No Project Alternative would be subject to local, State, and federal regulations that would reduce the potential for hazards and hazardous materials impacts. However, the proposed General Plan 2030 contains new goals, policies, and actions to further reduce potentially significant impacts, including policies that:

- Require mitigation of potential environmental impacts from new hazardous waste management facilities.
- Require an environmental assessment for a project that would allow uses with sensitive receptors on sites previously used for commercial, industrial, agricultural, or mining uses.

Overall, the No Project Alternative would have an insubstantial deterioration as compared to the proposed project.

h. Hydrology and Water Quality
The No Project Alternative would slightly increase the amount of development in Butte County, and it would allow non-agricultural development throughout a larger portion of the county than under the proposed General Plan 2030. This increased level of development is likely to cause additional impacts related to hydrology and water quality. More land would be disturbed and more impermeable surface area would be created, thereby increasing the potential for impacts related to increased stormwater runoff and contamination, depletion of groundwater supplies, and the degradation of water quality in receiving water bodies. Although development under the No Project Alternative would be subject to local, State and federal regulations that help to address hydrology and water quality impacts, the additional policies and actions related to hydrology and water quality in the proposed General
Plan 2030 would not be adopted. These policies and actions would preserve wetland areas for groundwater recharge, minimize impervious surfaces, direct the County to establish recharge zones, and require new development to mitigate its water quality impacts from stormwater runoff. The No Project Alternative would cause the same significant and unavoidable impacts related to potential levee or dam failure.

Overall, the No Project Alternative would result in a substantial deterioration in relation to the proposed project.

i. Land Use
Under the No Project Alternative, the type of land uses allowed would be relatively similar to that which would occur under the proposed General Plan 2030. However, the existing General Plan includes a number of land use designations that would be eliminated by the proposed project, and the land use pattern is more dispersed than under the proposed project. In particular, the No Project Alternative designates an extensive area for Agricultural Residential, a land use designation that would be eliminated by the proposed project, and includes higher density residential designations in some rural unincorporated communities compared to the proposed project.

Although neither the proposed project nor the No Project Alternative would physically divide existing communities within Butte County, the proposed General Plan 2030 includes new policies that would address impacts related to land use conflicts and that are not included in the existing General Plan, such as a policy that requires the design of industrial uses to avoid adverse impacts to adjacent uses. In addition, the Agricultural Residential designation could cause conflicts between agricultural and residential uses, since both are allowed in the same area.

The proposed project would result in a significant and unavoidable land use impact because it would conflict with the ALUCP. The No Project Alternative also conflicts with the ALUCP, so this impact would remain.
Because the No Project Alternative lacks the new General Plan 2030 policies related to land use conflicts and includes the Agricultural Residential designation, it would cause an insubstantial deterioration compared to the proposed project.

j. Noise
The No Project Alternative would generate more residential and industrial development and less commercial development than the proposed General Plan 2030. The combination of uses under this alternative would result in a roughly 0.5 percent increase in trip generation in comparison to the proposed project. As a result, this alternative may contribute to an increased level of traffic noise. In addition, the No Project Alternative allows smaller parcel sizes in the agricultural areas than the proposed project, and includes the Agricultural Residential designation, which could lead to more noise impacts from agricultural operations on residential uses than under the proposed project. Furthermore, the increased level of industrial development could cause noise impacts.

In addition, the No Project Alternative would not include the new policies and actions proposed in General Plan 2030 that would mitigate potential noise impacts, including policies and actions that:

♦ Require a noise analysis for new noise-producing uses near existing or planned noise-sensitive uses.
♦ Require standard construction noise control measures at construction sites.
♦ Require a setback from railroad tracks for vibration-sensitive uses.
♦ Establish a noise ordinance.

Therefore, the No Project Alternative would cause a substantial deterioration compared to the proposed project.
k. Population and Housing
The No Project Alternative would result in a buildout population that is 1,300 people more than that which would occur under the proposed General Plan 2030. As with the proposed project, this alternative would not require displacement of housing or people. The amount of population growth envisioned under this alternative would be only slightly greater than that foreseen under the proposed General Plan 2030, and would therefore be considered an insubstantial change. As a result, the No Project Alternative would have essentially the same impact as the proposed project.

l. Public Services and Recreation
The No Project Alternative would result in approximately 1,300 more residents at buildout than the proposed General Plan 2030, which would place a slightly larger demand on public services and recreation. In addition, this development would be more dispersed throughout the county than under the proposed project, making service delivery less efficient. Furthermore, the No Project Alternative would not include new General Plan 2030 policies and actions that address public services and recreation, such as policies and actions that:

♦ Require County facilities to be designed, constructed, and operated to be environmentally sustainable, and beneficial to the community and the region.

♦ Require new residential development to be assessed for Quimby Act fees to support park development.

♦ Direct the use of Community Facilities Districts, Mello-Roos and/or lighting and landscaping districts to provide funding for on-going maintenance and operation of parks and recreation facilities.

♦ Direct cooperation with the municipalities, park and recreation districts, and school districts to develop additional regional and community parks, support and coordinate park master plans, coordinate financing for recreation and park facilities, and plan for the distribution of federal and State funds for recreation and park programs and facilities.
As a result, the No Project Alternative would cause a substantial deterioration compared to the proposed project.

m. Transportation and Circulation
The transportation facilities assumed under the No Project Alternative are similar to those assumed under General Plan 2030 in that they include all of the RTP-funded improvements, but the No Project Alternative does not assume those improvements proposed by the General Plan 2030 Circulation Map.

The No Project Alternative would have similar impacts to General Plan 2030, but with a few exceptions. A total of 28 roadway segments would operate unacceptably during the PM peak hour based on the applicable level of service standards. The deficiencies that would exist under the No Project Alternative, but not under the 2030 General Plan include:

- East Gridley Road between State Route 99 and State Route 70 – LOS D
- The Skyway from South Pentz Road to Nimshew Road north of the City of Paradise – LOS D

In addition, one segment that was impacted under Year 2030 Plus General Plan Conditions that would not be impacted under the No Project Alternative is State Route 162 between Foothill Boulevard and Canyon Way, which would operate acceptably at LOS D.

The No Project Alternative would result in 0.5 percent more vehicle miles traveled than the proposed General Plan 2030. This increase is primarily due to the higher amount of residential growth, combined with less commercial development than that of the proposed General Plan 2030. Even though this alternative would cause the largest overall increase in industrial space, it likely does not improve the jobs-to-housing balance as much as the proposed General Plan 2030, which would mean Butte County residents would need to commute out of the county to work.
In addition, the No Project Alternative would not include some of the policies and actions that support transit, bicycles, and pedestrian transportation that are included in General Plan 2030, such as policies and actions that encourage trip reduction, support connections to regional transportation service, require bicycle and pedestrian connectivity, and support improved public transit.

Overall, the slight increase in vehicles on the roadways and roadway segments operating unacceptably under the No Project Alternative would cause an insubstantial deterioration compared to the proposed project.

n. Utilities and Infrastructure
The No Project Alternative would result in approximately 1,300 more residents at buildout than the proposed General Plan 2030, which would place a slightly larger demand on utilities. In addition, this development would be more dispersed throughout the county than under the proposed project, making service delivery less efficient. Furthermore, the No Project Alternative would not include new General Plan 2030 policies and actions that address utilities and infrastructure, such as policies and actions that:

♦ Commit the County to implementing and updating the Integrated Water Management Plan to ensure the sustainability of water resources within the county.

♦ Call for the County to develop standards to preserve groundwater recharge and protect groundwater quality.

♦ Require sewer collection and transmission systems to minimize potential inflow and infiltration.

♦ Require demonstration of available capacity at a wastewater treatment system that is safe, sanitary, and environmentally sound as a condition of approval for new development.

♦ Require that the County meet or exceed State waste diversion requirements.
As a result, the No Project Alternative would cause a substantial deterioration compared to the proposed project.

o. Greenhouse Gas Emissions
As previously discussed, the No Project Alternative would result in an imbalance between jobs and housing, meaning that residents of Butte County would have to commute out of the county to work, which would increase greenhouse gas (GHG) emissions from vehicles. Specifically, vehicle miles traveled would increase by 0.5 percent. Like the proposed project, the No Project Alternative would cause GHG emissions in 2020 to be greater than 85 percent of current GHG emissions, resulting in a significant impact.

In addition to causing more GHG emissions than the proposed project, the No Project Alternative would not include the new policies and actions that would work to reduce GHG emissions that are included in General Plan 2030, including policies and actions that promote alternative modes of transportation, prioritize transit funding, promote public transit, support bicycling as a viable transportation mode, promote the development of alternative energy, promote the conservation of energy, address emissions from industrial land uses, reduce solid waste, promote sustainable agriculture, limit the amount of natural land conversion due to urban growth, and support water conservation and increased recycling of water.

Due to the slight increase in vehicle miles traveled and the lack of policies that address GHG emissions, the No Project Alternative would cause an insubstantial deterioration in comparison to the proposed project.

D. The Concentrated Growth Alternative

This section analyzes the Concentrated Growth Alternative against General Plan 2030 and the ALUCP override.
1. Principal Characteristics
As shown in Table 5-1, the Concentrated Growth Alternative would provide for approximately 500 more new residential units than General Plan 2030, which would equate to 1,300 more residents at projected 2030 buildout. This alternative includes the same amount of new industrial space and 200,000 more square feet of new commercial space. The projected 2030 buildout of the Concentrated Growth Alternative is approximately:
- 14,200 new dwelling units
- 35,100 new residents
- 2 million square feet new retail/office space
- 1.1 million square feet new industrial space

In this alternative, development would be directed toward the existing urban areas. Outlying areas are instead designated for very low density residential, agriculture, and resource conservation. Meanwhile, higher density development would occur in and around the existing urban areas.

2. Impact Analysis
The Concentrated Growth Alternative would have the following impacts relative to adoption of General Plan 2030 and the ALUCP override.

a. Aesthetics
The Concentrated Growth Alternative would contain the same goals, policies, actions and regulations addressing the aesthetic impacts of new development as the proposed General Plan 2030. Because the Concentrated Growth Alternative would result in a greater intensity of urban development within the county’s urbanized areas as compared to the proposed project, this alternative would reduce the amount of land converted to urban uses county-wide, helping to retain the county’s rural character over a larger area of the county and maintain more undeveloped scenic areas. Therefore, the Concentrated Growth Alternative would be considered an insubstantial improvement as compared to the proposed project.
b. Agriculture
The Concentrated Growth Alternative would contain the same goals, policies, actions and regulations helping to protect agricultural resources as the proposed General Plan 2030, including increased minimum parcel sizes. This alternative would also result in a more intense overall form of urban development compared to General Plan 2030. Although this density would be concentrated around the county’s existing urbanized areas, the alternative would still convert Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to non-agricultural uses and conflict with Williamson Act contracts by designating agricultural land for non-agricultural uses. Overall, the Concentrated Growth Alternative would be substantially similar to the proposed project.

c. Air Quality
The Concentrated Growth Alternative would contain the same goals, policies and actions addressing air quality as the proposed General Plan 2030. Under this alternative, residential development would develop closer to proposed commercial areas, which would decrease vehicle trips by approximately 0.1 percent compared to the proposed General Plan 2030, as it would improve the jobs-to-housing balance, and more residents may choose to walk or bike to local destinations. Consequently, air pollutant emissions would decrease. Therefore, the No Project Alternative would represent an insubstantial improvement over the proposed project.

d. Biological Resources
The Concentrated Growth Alternative would contain the same goals, policies and actions protecting biological resources as the proposed General Plan 2030. By focusing growth into more urbanized areas, the Concentrated Growth Alternative would place less growth pressure on habitat and potential habitat for species of concern than the proposed project. Similarly, more focused growth would be less likely to impact species of concern or supporting habitat. However, the proposed goals, policies, and actions in the proposed project, combined with existing regulations, would avoid any significant impacts, so the improvement from the Concentrated Growth Alternative would not
be substantial. Overall, the Concentrated Growth Alternative would result in an insubstantial improvement to biological resources.

e. Cultural Resources
The Concentrated Growth Alternative would include the same goals, policies, actions, and regulations to protect cultural resources as the proposed project. In addition, the Concentrated Growth Alternative would contribute to a more centralized pattern of growth oriented to the urbanized or urbanizing portions of the county in comparison to the proposed General Plan 2030. As a result of this development pattern, there would be less construction in undeveloped or lesser developed portions of the county. The undeveloped and lesser developed portions of the county are typically where the potential for impacts on previously undiscovered, buried cultural resources is greater. Overall, this alternative would result in an insubstantial improvement over the proposed project.

f. Geology, Soils, and Mineral Resources
The Concentrated Growth Alternative would include the same goals, policies, actions, and regulations to address geology, soils, and mineral resources as the proposed project. This alternative would result in a slightly greater number of new residents and amount of new development than the proposed General Plan 2030, some of which would be subject to risk from geological and soils-based hazards. However, new development under the alternative would be subject to local, State, and federal regulations that would reduce the potential for a geological or soils-related impact to a less-than-significant level. As a result, the Concentrated Growth Alternative would have a substantially similar impact as the proposed project.

g. Hazards and Safety
The Concentrated Growth Alternative would contain the same mitigating policies and actions as the proposed General Plan 2030, and new development under this alternative would be subject to local, State, and federal regulations that would reduce the potential for hazards and hazardous materials impacts to a less-than-significant level.
The Concentrated Growth Alternative would result in a greater amount of new residential and commercial development than the proposed General Plan 2030, and would therefore expose more people to hazards and hazardous materials. Industrial uses, which are more likely to transport, store, and emit hazardous materials that could be harmful to the public, would be at similar levels under the proposed project. Due to the mitigating policies and actions in both the Concentrated Growth Alternative and the proposed project, as well as existing local, State, and federal regulations, the Concentrated Growth Alternative would have substantially similar impacts as the proposed project.

h. Hydrology and Water Quality
The Concentrated Growth Alternative would include the same goals, policies, and actions to address hydrology and water quality as the proposed project. Although the Concentrated Growth Alternative would allow more development compared to the proposed General Plan 2030, it would focus new growth into existing urbanized areas. The more focused pattern of growth is less likely to cause impacts related to hydrology and water quality. Less undeveloped land would be disturbed and less impermeable surface area would be created, thereby reducing the potential for impacts related to increased stormwater runoff and contamination, depletion of groundwater supplies, and the degradation of water quality. Like the proposed project, the Concentrated Growth Alternative would allow development in areas subject to dam inundation, resulting in a significant unavoidable impact. Overall, this alternative would result in an insubstantial improvement in relation to the proposed project.

i. Land Use
The Concentrated Growth Alternative would allow a similar type of land uses as the proposed General Plan 2030, although growth patterns would be more focused to urban areas. Neither the proposed project nor the Concentrated Growth Alternative would physically divide existing communities within Butte County, and both would include new policies and actions that would address impacts related to land use conflicts. In addition, both the proposed General Plan 2030 and the Concentrated Growth Alternative
would conflict with the ALUCP, require an ALUCP override, and cause a significant and unavoidable land use impact. As a result, the Concentrated Growth Alternative would have substantially similar land use impacts as the proposed project.

j. Noise
The Concentrated Growth Alternative would have the same goals, policies and actions related to noise as in the proposed General Plan 2030. This alternative would allow more development and therefore more noise during construction than the proposed General Plan 2030. However, a more focused pattern of growth would reduce the number and length of trips made by single-occupancy vehicle by 0.1 percent, resulting in slightly less traffic-generated noise and an improvement over the proposed project. Like the proposed project, the Concentrated Growth Alternative would cause a significant and unavoidable impact to traffic noise, although it would make a lesser contribution. Overall, it would be an insubstantial improvement to the proposed project.

k. Population and Housing
The Concentrated Growth Alternative would have the same goals, policies and actions related to population and housing as in the proposed General Plan 2030. The Concentrated Growth Alternative would result in a buildout population slightly greater than that which would occur under the proposed General Plan 2030 by about 1,300 people. As with the proposed project, this alternative would not require displacement of housing or people. Although the amount of population growth envisioned under this alternative would be slightly greater than that foreseen under the proposed General Plan 2030, it would be considered insubstantial since it is only about a 4 percent increase. As a result, the Concentrated Growth Alternative would have essentially the same impact as the proposed project.

l. Public Services and Recreation
The Concentrated Growth Alternative would include the same policies and actions addressing public services and recreation as in the proposed General
Plan 2030. The Concentrated Growth Alternative would result in approximately 1,300 more residents at buildout than the proposed General Plan 2030, which would place a slightly larger demand on public services and recreation. However, development under the Concentrated Growth Alternative would be directed to existing urbanized areas, making service delivery more efficient. As a result, the Concentrated Growth Alternative would cause an insubstantial improvement compared to the proposed project.

m. Transportation and Circulation
The Concentrated Growth Alternative would include the same policies and actions addressing transportation and circulation as in the proposed General Plan 2030. The Concentrated Growth Alternative would reduce vehicle miles traveled by approximately 0.1 percent compared to the proposed General Plan 2030. The reduction in vehicle miles traveled is likely due to the increased level of commercial development, which could improve the jobs-to-housing balance in the county and reduce the commute lengths for Butte County residents. Due to the slight decrease in vehicles on the roadways under this alternative, it would cause an insubstantial improvement over the proposed project.

n. Utilities and Infrastructure
The Concentrated Growth Alternative would include the same policies and actions addressing utilities and infrastructure as in the proposed General Plan 2030. The Concentrated Growth Alternative would result in approximately 1,300 more residents at buildout than the proposed General Plan 2030, which would place a slightly larger demand on utilities and infrastructure. However, development under the Concentrated Growth Alternative would be directed to existing urbanized areas, making service delivery more efficient. As a result, the Concentrated Growth Alternative would cause an insubstantial improvement compared to the proposed project.

o. Greenhouse Gas Emissions
The Concentrated Growth Alternative would contain the same goals, policies, and actions addressing GHG emissions as the proposed General Plan
Under this alternative, residential development would occur closer to proposed commercial areas, which would decrease vehicle trips by approximately 0.1 percent compared to the proposed General Plan 2030, as it would improve the jobs-to-housing balance, and more residents may choose to walk or bike to local destinations. Consequently, GHG emissions would decrease. Therefore, the No Project Alternative would represent an insubstantial improvement over the proposed project.

E. The Rural Extension Alternative

This section analyzes the Rural Extension Alternative against General Plan 2030 and the ALUCP override.

1. Principal Characteristics

As shown in Table 5-1, the Rural Extension Alternative would provide for approximately 600 more new residential units than General Plan 2030, which would equate to about 1,500 more residents in Butte County at projected 2030 buildout. Similarly, this alternative includes 100,000 more square feet of new industrial space and 700,000 more square feet of new commercial space. The projected 2030 buildout of the Rural Extension Alternative is as follows (approximately):

- 14,300 new dwelling units
- 35,300 new residents
- 2.5 million square feet new retail/office space
- 1.2 million square feet new industrial space

In this alternative, development would be distributed more widely throughout the county with less emphasis on locating new development in or next to existing urban areas than the proposed project. Typically, outlying areas under this alternative would allow more dwelling units than under the proposed project and densities would be often lower in and around the existing urban areas.
2. Impact Analysis

The Rural Extension Alternative would have the following impacts relative to adoption of General Plan 2030 and the ALUCP override.

a. Aesthetics

The Rural Extension Alternative would contain the same goals, policies, actions, and regulations addressing the aesthetic impacts of new development as the proposed General Plan 2030. The Rural Extension Alternative would allow a similar amount of development as the proposed project, but it would allow that development to be spread over a larger area. This more dispersed pattern of development would have less visual impact on the existing rural character of the county. Overall, the Rural Extension Alternative would result in an insubstantial improvement compared to the proposed project.

b. Agriculture

The Rural Extension Alternative would contain the same goals, policies, actions, and regulations helping to protect agricultural resources as the proposed General Plan 2030, including the increased minimum parcel sizes. In addition, this alternative would convert Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to non-agricultural uses and cause conflicts with Williamson Act contracts through non-agricultural land use. Overall, the Rural Extension Alternative would be substantially similar to the proposed project.

c. Air Quality

The Rural Extension Alternative would contain the same goals, policies, and actions addressing air quality as the proposed General Plan 2030. Under the Rural Extension Alternative, more residential development would spread throughout undeveloped portions of the county; resulting in approximately 9 percent higher trip generation compared to the proposed General Plan 2030. This increase in vehicle trips would result in increased emissions of air pollutants. Because the Rural Extension Alternative could result in an increased level of emissions overall, it would represent an insubstantial deterioration over General Plan 2030.
d. Biological Resources
The Rural Extension Alternative would contain the same goals, policies, and actions protecting biological resources as the proposed General Plan 2030. However, by extending growth into more rural areas, this alternative would place more growth pressure on habitat and potential habitat for species of concern than under General Plan 2030. Therefore, the Rural Extension Alternative would result in an insubstantial deterioration to biological resources compared to the proposed project.

e. Cultural Resources
The Rural Extension Alternative would include the same goals, policies, actions, and regulations to protect cultural resources as the proposed project. However, this alternative would contribute to a less centralized pattern of growth oriented to the more undeveloped portions of Butte County. As a result of this development pattern, there would be more construction in undeveloped or lesser developed portions of the county. The undeveloped and lesser developed portions of the county are typically where the potential for impacts on previously undiscovered, buried cultural resources is greater. Overall, this alternative would result in an insubstantial deterioration compared the proposed project.

f. Geology, Soils, and Mineral Resources
The Rural Extension Alternative would include the same goals, policies, actions, and regulations to address geology, soils, and mineral resources as the proposed project. This alternative would result in a slightly greater number of new residents and new development, including development in more areas prone to geologic hazards, such as landslides, erosion, and expansive soils. However, new development under the Rural Extension Alternative would be subject to local, State, and federal regulations that would reduce the potential for a geological or soils-related impact to a less-than-significant level. As a result, the Rural Extension Alternative would have a substantially similar impact as the proposed project.
g. Hazards and Safety
The Rural Extension Alternative would contain the same mitigating policies and actions as the proposed General Plan 2030, and new development under this alternative would be subject to local, State, and federal regulations that would reduce the potential for hazards and hazardous materials impacts to a less-than-significant level.

However, the Rural Extension Alternative would allow a greater amount of new residential, commercial, and industrial development than the proposed General Plan 2030, and would therefore expose more people to hazards and hazardous material sources and increase the potential for new uses to generate hazardous materials.

Because the Rural Extension Alternative would contain mitigating policies and actions and would be subject to existing local, State, and federal regulations, the Rural Extension Alternative would have a substantially similar impact as the proposed project.

h. Hydrology and Water Quality
The Rural Extension Alternative would include the same goals, policies, and actions to address hydrology and water quality as the proposed project. However, this alternative would allow more development, and this development would occur in more of the county’s rural, undeveloped areas. This pattern of growth is more likely to cause impacts related to hydrology and water quality. More undeveloped land would be disturbed and more impermeable surface area would be created, thereby increasing the potential for impacts related to increased stormwater runoff and contamination, depletion of groundwater supplies, and the degradation of water quality. However, new development under the Rural Extension Alternative would be subject to local, State, and federal regulations that help to address hydrology and water quality impacts.

Like the proposed project, the Rural Extension Alternative would allow development in areas subject to dam inundation, resulting in a significant unavoidable impact.
Overall, this alternative would result in an insubstantial deterioration in relation to the proposed project.

i. Land Use
Under the Rural Extension Alternative, the type of land uses allowed would be relatively similar to that which would occur under the proposed General Plan 2030, although growth patterns would be extended into rural areas. Neither the proposed project nor the Rural Extension Alternative would physically divide existing communities within Butte County, and both would include new policies and actions that would address impacts related to land use conflicts. In addition, both the proposed General Plan 2030 and the Rural Extension Alternative would conflict with the ALUCP, require an ALUCP override, and cause a significant and unavoidable land use impact. As a result, the Rural Extension Alternative would have a substantially similar impact as the proposed project with regard to land use.

j. Noise
The Rural Extension Alternative would have the same goals, policies and actions related to noise as in the proposed General Plan 2030, which would serve to reduce all potential noise impacts to a less-than-significant level, with the exception of significant and unavoidable traffic and aircraft noise impacts. However, this alternative would generate more development and therefore more noise during construction than the proposed General Plan 2030. In addition, a more scattered pattern of growth would increase the number and length of trips made by single-occupancy vehicle by 9 percent, resulting in more traffic-generated noise. Because the Rural Extension Alternative would also have a significant and unavoidable impact to traffic noise, and it would make a greater contribution, it would be an insubstantial deterioration compared to the proposed project.

k. Population and Housing
The Rural Extension Alternative would have the same goals, policies, and actions related to population and housing as in the proposed General Plan 2030. This alternative would result in a buildout population slightly greater
than that which would occur under the proposed General Plan 2030 by about 1,500 people. As with the proposed project, this alternative would not require displacement of housing or people. Although the amount of population growth envisioned under this alternative would be slightly greater than that foreseen under the proposed General Plan 2030, it would be considered insubstantial since it is only about a 4 percent increase. As a result, the Rural Extension Alternative would have essentially the same impact as the proposed project.

l. Public Services and Recreation
The Rural Extension Alternative would include the same policies and actions addressing public services and recreation as in the proposed General Plan 2030. This alternative would result in approximately 1,500 more residents at buildout than the proposed General Plan 2030, which would place a slightly larger demand on public services and recreation. In addition, development under the Rural Extension Alternative would be more dispersed, making service delivery less efficient. Overall, the Rural Extension Alternative would cause an insubstantial deterioration compared to the proposed project.

m. Transportation and Circulation
The Rural Extension Alternative would include the same policies and actions addressing transportation and circulation as in the proposed General Plan 2030. This alternative would cause the highest amount of vehicle miles traveled among the three alternatives, a 9 percent increase over the proposed General Plan 2030. This increase is attributable to aspects of this alternative. First, land uses are spread farther throughout the county than the other alternatives, necessitating more auto travel between destinations. Second, the amount of commercial and industrial development envisioned by this alternative would provide a higher number of jobs than the number of employed residents in Butte County, meaning workers would have to commute from outside the county. Due to the significant increase in vehicles on the roadways under this alternative, this alternative would cause a substantial deterioration compared to the proposed project.
n. Utilities and Infrastructure
The Rural Extension Alternative would include the same policies and actions addressing utilities and infrastructure as in the proposed General Plan 2030. This alternative would result in approximately 1,500 more residents at buildout than the proposed General Plan 2030, which would place a slightly larger demand on utilities and infrastructure. In addition, development under the Rural Extension Alternative would be more dispersed, making service delivery less efficient. Overall, the Rural Extension Alternative would cause an insubstantial deterioration compared to the proposed project.

o. Greenhouse Gas Emissions
The Rural Extension Alternative would contain the same goals, policies, and actions addressing GHG emissions as the proposed General Plan 2030. Under the Rural Extension Alternative, more residential development would spread throughout undeveloped portions of the county; resulting in approximately 9 percent higher trip generation compared to the proposed General Plan 2030. This increase in vehicle trips would result in increased GHG emissions. Because the Rural Extension Alternative could result in an increased level of emissions overall, it would represent an insubstantial deterioration over General Plan 2030.

F. Environmentally Superior Alternative
CEQA requires the identification of an environmentally superior alternative in an EIR. Based on the above analysis, which is summarized in Table 5-2, the Concentrated Growth Alternative is the Environmentally Superior Alternative. By focusing growth into the sphere of influence (SOI) of the county’s municipalities and into existing unincorporated communities, this alternative would be an improvement over the proposed project with respect to potential negative impacts associated with aesthetics, air quality, biological resources, cultural resources, hydrology and water quality, noise, public services and recreation, transportation and circulation, utilities and infrastructure, and GHG emissions.
As required by CEQA, this chapter provides an overview of the impacts of the proposed General Plan 2030 and the Airport Land Use Compatibility Plan (ALUCP) override based on the technical analyses presented in this EIR. The topics covered in this chapter include growth inducement, unavoidable significant impacts, expected significant irreversible environmental changes, and cumulative impacts. A more detailed analysis of the project-level and cumulative effects of the proposed project on the environment is provided in Chapter 4 of this report.

A. Growth Inducement

A project is typically considered to be growth-inducing if it fosters economic or population growth. Typical growth inducements might be the extension of urban services or transportation infrastructure to a previously unserved or under-served area, or removal of major barriers to development. Not all growth inducement is necessarily negative. Negative impacts associated with growth inducement occur only where the projected growth would cause adverse environmental impacts.

Growth-inducing impacts fall into two general categories: direct and indirect. Direct growth-inducing impacts generally result from the extension of urban services to an undeveloped area, which can serve to induce landowners in the vicinity to convert their properties to urban uses. Indirect, or secondary, growth-inducing impacts, refer to growth induced by additional demands for housing, goods, and services associated with the population increase caused by, or attracted to, a new project.

1. Direct Impacts
The proposed General Plan 2030 and ALUCP override would directly induce population, employment, and economic growth by allowing development in areas not currently designated for urban growth. Implementation of the proposed project would result in the following growth under projected buildout conditions in 2030 based on the expected growth assumptions for the unincorporated county:
♦ Add approximately 33,800 new residents.
♦ Add approximately 13,700 new residential units.
♦ Add approximately 1.8 million new square feet of retail and office uses.
♦ Add approximately 1.1 million new square feet of industrial uses.

The primary mechanism for this growth is the General Plan 2030 land use map, which allows for development in areas that are not currently developed. The anticipated locations of this growth are shown in Figure 3-5 in Chapter 3, Project Description.

The General Plan 2030 land use map allows some residential development in rural areas of the county. Under General Plan 2030, the County would continue its practice of allowing a single family home to be constructed on parcels designated for agricultural and timber mountain uses.

However, the proposed General Plan 2030 includes policies to control how growth occurs within Butte County and to encourage infill development. Land Use Element Goal LU-2 and its associated policies call for orderly, well-planned, and balanced growth. Policies LU-P2.3 and LU-P2.4 support planning efforts in unincorporated communities through the development of community visions, area plans, urban growth boundaries, community boundaries and spheres of influence (SOIs). In addition, Policy LU-P15.2 requires that new urban development be primarily located in or immediately adjoining already urbanized areas. Goal LU-8 promotes development near existing infrastructure and services and within already-developed areas. Policy LU-P8.1 directs industry to be located near major transportation facilities. Policy LU-P8.2 requires that the County direct projected growth to areas where the appropriate level of transportation infrastructure is or will be available during the planning period. In addition, Policies LU-P8.3, LU-P8.4, LU-P8.5, and LU-P15.3 promote efficient infill development near public facilities.

The proposed General Plan 2030 also includes policies that would maintain the rural character of Butte County and minimize the environmental impacts of anticipated growth. Policy LU-P4.1 requires that the integrity and stability
of existing residential neighborhoods be promoted and preserved. In addition, the Land Use Element supports community planning efforts that would preserve the character of these communities through policies LU-P2.4, which supports planning efforts in unincorporated communities by providing knowledge, time, and materials to community efforts, and LU-P2.5, which engages unincorporated communities in community planning processes to set a community vision, develop Area Plans and potentially urban growth boundaries, community boundaries and SOIs.

As a result, while the proposed General Plan 2030 and ALUCP override would result in increased local growth, policies included in General Plan 2030 would reduce the potential for negative impacts associated with direct growth inducement to a less-than-significant level.

2. **Indirect Impacts**

As described above, indirect growth-inducing impacts would be growth induced in the region by additional demands for housing, goods, and services associated with the population increase caused by a new project.

While the proposed General Plan 2030 and ALUCP override allow additional growth, General Plan 2030 also includes specific policies that direct growth to existing urbanized areas. For example, Policy LU-P2.3 requires that new urban development be primarily located in or immediately adjoining already urbanized areas. The proposed General Plan 2030 land use map also works to limit the expansion of urban growth by providing designations that allow urban development primarily within the SOIs for the incorporated municipalities and the existing unincorporated communities. Outside of those areas, the General Plan land use designations would not allow urban levels of development. The principles that guided the development of the land use map for General Plan 2030 are also included as policies in the Land Use Element. In particular, Policy LU-P15.1 requires that the County prevent scattered development patterns and encourage development in existing urbanized areas, and in particular areas that have access to public services and infrastructure.
In addition, the General Plan 2030 land use map provides a mixture of housing, retail, and employment opportunities within Butte County so that as the number of residents increase, they do not pressure adjacent communities to provide new commercial and employment opportunities. As a result, the proposed General Plan 2030 and ALUCP override would result in a less-than-significant indirect negative growth inducing impact.

**B. Unavoidable Significant Impacts**

While the majority of impacts associated with General Plan 2030 and the ALCUP override would be reduced to a less-than-significant level, adoption and implementation of the proposed project would result in the following significant and unavoidable impacts:

1. **Agriculture**

Growth and development under General Plan 2030 will result in the conversion of Prime Farmland, Farmland of Statewide Importance and Unique Farmland to non-agricultural uses, as well as conflicts with existing Williamson Act contracts. These impacts cannot be mitigated to a less-than-significant level. In addition, as growth occurs elsewhere in Butte County and surrounding counties, additional agricultural lands will be converted to non-agricultural uses resulting in significant cumulative impacts. As a result, the potential for project-level and cumulative impacts associated with agricultural land would be significant and unavoidable.

2. **Biological Resources**

Although growth and development under General Plan 2030 would not result in environmental impacts to biological resources, development in Butte County and elsewhere in the region would contribute to the on-going loss of undeveloped natural lands, which could impact special-status species, sensitive natural communities, federally-protected wetlands, and wildlife and fish movement corridors. This cumulative impact would be significant and unavoidable.
3. Hydrology and Water Quality
Although General Plan 2030 polices and actions reduce risks associated with levee and dam failure, they do not fully eliminate the risks to people and property, and there is no feasible mitigation to reduce these impacts to a less-than-significant level. These impacts would contribute to a wider regional trend in which development is occurring within or close to hazard areas. As a result, implementation of General Plan 2030 would have significant and unavoidable hydrology and water quality impacts at both the project and cumulative level.

4. Land Use
General Plan 2030 conflicts with the ALUCP, which necessitates the ALUCP override. In addition, the City of Chico General Plan conflicts with the ALUCP, so the proposed project would contribute to a cumulative impact. No feasible mitigation is available. Therefore, the project and cumulative impacts are significant and unavoidable.

5. Noise
Implementation of General Plan 2030 would cause a substantial permanent increase in ambient noise levels from increased traffic and aircraft operations. Anticipated development in the larger region will contribute increased traffic on major regional roadways, so the project would also contribute to cumulative noise conditions that cause a substantial permanent increase in ambient noise levels. No feasible mitigation is available. As a result, the proposed project would have significant and unavoidable noise impacts at both the project and cumulative level.

6. Transportation and Circulation
As discussed in Chapter 4.13, Transportation and Circulation, a number of improvements to the county’s roadway network would be required to accommodate growth under General Plan 2030, and to ensure acceptable traffic operations consistent with Policies CIR-P6.1 and CIR-P6.2. Although mitigation measures are identified that could reduce impacts to a less-than-significant level, many of the facilities targeted for improvements by the mitigation
measures are State or municipal facilities, so implementation cannot be guaranteed. Furthermore, traffic generated under the projected 2030 buildout of General Plan 2030 would contribute to inter-regional traffic volumes on Highways 70, 99, and 65, which already experience deficiencies. No program has been established to address these deficiencies. As a result, the proposed project would have significant and unavoidable impacts related to traffic and transportation at both the project and cumulative levels.

7. **Greenhouse Gas Emissions**
Implementation of General Plan 2030 would result in GHG emissions that would contribute to cumulative GHG emissions and global climate change. The 2020 GHG forecast for the county indicates that emissions would be greater than 85 percent of current (2006) conditions, creating a significant contribution to GHG emissions and associated climate change impacts. Policies and actions would provide a comprehensive framework for reducing GHG emissions in the county, but they do not ensure that the County can meet the reduction goal. As part of the General Plan 2030 process, the County considered a wide range of policies and actions to reduce GHG emissions, and all feasible measures are included. However, they do not ensure that the County will meet its reduction goal, so the impact is considered cumulatively significant and unavoidable.

C. **Significant Irreversible Changes**

Section 15126.2(c) of the CEQA Guidelines requires a discussion of the extent to which a proposed project will commit nonrenewable resources to uses that future generations will probably be unable to reverse. An example of such an irreversible commitment is the construction of highway improvements that would provide public access to previously inaccessible areas.

A project would generally result in a significant irreversible impact if:

- Primary and secondary impacts would commit future generations to similar uses.
♦ The project would involve a large commitment of nonrenewable resources.

♦ The project would involve uses in which irreversible damage could result from any potential environmental accidents associated with the project.

1. Changes in Land Use that Commit Future Generations
Development allowed by General Plan 2030 and the ALUCP override would result in the conversion of vacant land to residential, commercial and industrial uses, and the intensification of underutilized areas. This development would constitute a long-term commitment to residential, commercial, industrial, parking, and other urban uses.

2. Commitment of Resources
Development allowed by General Plan 2030 and the ALUCP override would irretrievably commit nonrenewable resources, both from within and outside Butte County, to the construction and maintenance of buildings, infrastructure and roadways. These non-renewable resources include mined materials such as sand, gravel, steel, lead, copper, and other metals. Buildout of General Plan 2030 and the ALUCP override also represents a long-term commitment to the consumption of fossil fuels, natural gas, and gasoline. Increased energy demands would be used for construction, lighting, heating, and cooling of residences, and transportation of people within, to, and from the planning area. General Plan 2030 Goals COS-3 and COS-4 and their associated policies and actions would promote energy conservation, which could minimize or incrementally reduce the consumption of these resources.

Implementation of General Plan 2030 and the ALUCP override would also result in an irreversible commitment of limited, renewable resources such as lumber and water. General Plan 2030 Goals COS-3 and COS-4 and their associated policies and actions would also result in some savings of renewable resources.
3. Irreversible Damage from Environmental Accidents

Irreversible changes to the physical environment could occur from accidental release of hazardous materials associated with development activities. However, compliance with State and federal hazardous materials regulations and the countywide response plan, as discussed in Section 4.7, Hazards and Safety, would reduce this potential impact to a less-than-significant level. No other irreversible changes are expected to result from the adoption and implementation of General Plan 2030 and the ALUCP override.

D. Cumulative Impacts

CEQA Guidelines require consideration of the potential cumulative impacts that could result from a proposed project in conjunction with other projects in the vicinity. Such impacts can occur when two or more individual effects create a considerable environmental impact or compound other environmental consequences. In the case of a countywide planning document such as the proposed General Plan 2030, cumulative effects are effects that combine impacts from implementation of the project in the unincorporated county with effects of development in other portions of the region, including the incorporated municipalities and the surrounding counties.

In addition to development within unincorporated Butte County as evaluated in this Draft EIR, the cumulative analyses evaluate aggregated impacts from projected development in the incorporated municipalities of Butte County and adjacent counties. The cumulative analyses consider anticipated levels of growth and development within the following jurisdictions:

♦ Municipalities in Butte County:
  • City of Biggs
  • City of Chico
  • City of Gridley
  • City of Oroville
  • Town of Paradise
♦ Adjacent Counties:
  • Colusa County
  • Glenn County
  • Plumas County
  • Sutter County
  • Tehama County
  • Yuba County

♦ Adjacent Municipalities:
  • City of Colusa
  • City of Corning
  • City of Live Oak
  • City of Marysville
  • City of Orland
  • City of Portola
  • City of Red Bluff
  • City of Tehama
  • City of Wheatland
  • City of Williams
  • City of Willows
  • City of Yuba City

While each jurisdiction projects a continued trend of population growth and urbanization into the foreseeable future, most of the jurisdictions expect growth to be moderate and do not expect a substantial increase in their overall level of development in relation to existing conditions. An exception to this trend is southern Yuba County, where a comparatively higher level of growth is occurring and expected to continue in the future.

The potential cumulative effects of the proposed project are discussed at the regional level within each section of Chapter 4, Environmental Evaluation.
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Appendix A

Air Quality Technical Information: Carbon Monoxide Modeling
APPENDIX A. AIR QUALITY TECHNICAL INFORMATION

Carbon Monoxide Modeling

Mass Emissions Dispersion Modeling

Predicting the ambient air quality impacts of pollutant emissions requires an assessment of the transport, dispersion, chemical transformation, and removal processes that affect pollutant emissions after their release from a source. Gaussian dispersion models are frequently used for such analyses. The term Gaussian dispersion refers to a general type of mathematical equation used to describe the horizontal and vertical distribution of pollutants downwind from an emission source.

Gaussian dispersion models treat pollutant emissions as being carried downwind in a defined plume, subject to horizontal and vertical mixing with the surrounding atmosphere. The plume spreads horizontally and vertically with a reduction in pollutant concentrations as it travels downwind. Mixing with the surrounding atmosphere is greatest at the edge of the plume, resulting in lower pollutant concentrations outward (horizontally and vertically) from the center of the plume. This decrease in concentration outward from the center of the plume is treated as following a Gaussian (“normal”) statistical distribution. Horizontal and vertical mixing generally occur at different rates. Because turbulent motions in the atmosphere occur on a variety of spatial and time scales, vertical and horizontal mixing also vary with distance downwind from the emission source.

The CALINE4 Model

The ambient air quality effects of traffic emissions were evaluated using the CALINE4 dispersion model. CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway link analyzed in the model is treated as a sequence of short segments. Each segment of a roadway link is treated as a separate emission source producing a plume of pollutants which disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments.

When winds are essentially parallel to a roadway link, pollution plumes from all roadway segments overlap. This produces high concentrations near the roadway (near the center of the overlapping pollution plumes) and low concentrations well away from the roadway (at the edges of the overlapping pollution plumes). When winds are at an angle to the roadway link, pollution plumes from distant roadway segments make essentially no contribution to the pollution concentration observed at a receptor location. Under such cross wind situations, pollutant concentrations near the highway are lower than under parallel wind conditions (fewer overlapping plume contributions), while pollutant concentrations away from the highway may be greater than would occur with parallel winds (near the center of at least some pollution plumes).

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1 Benson, P. E. 1989. CALINE4—a dispersion model for predicting air pollution concentrations near roadways. California Department of Transportation. Sacramento, CA
The CALINE4 model employs a “mixing cell” approach to estimating pollutant concentrations over the roadway itself. The size of the mixing cell over each roadway segment is based on the width of the traffic lanes of the highway (generally 12 feet per lane) plus an additional turbulence zone on either side (generally 10 feet on each side). Parking lanes and roadway shoulders are not counted as traffic lanes. The height of the mixing cell is calculated by the model.

Pollutants emitted along a highway link are treated as being well mixed within the mixing cell volume due to mechanical turbulence from moving vehicles and convective mixing due to the temperature of vehicle exhaust gases. Pollutant concentrations downwind from the mixing cell are calculated using horizontal and vertical dispersion rates, which are a function of various meteorological and ground surface conditions.

Modeling Procedures

**Vehicle Emissions Rates:** Vehicle emission rates were determined using ARB’s EMFAC 2007 emission rate program. Free flow traffic speeds were adjusted using the VEHSPEED.WKS model developed by Jones & Stokes Associates, Inc. The VEHSPEED.WKS model is an excel spreadsheet that calculates adjusted roadway speeds based on user inputs for segment capacity, posted sign speeds, and LOS. Table 1 summarizes the adjusted speeds used in the EMFAC 2007 modeling.

<table>
<thead>
<tr>
<th>Roadway Segment</th>
<th>Posted Speed</th>
<th>Adjusted Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
<td>Future NP</td>
</tr>
<tr>
<td>SR 149-Durham-Pentz Rd</td>
<td>65</td>
<td>62</td>
</tr>
<tr>
<td>Durham-Pentz Rd–Skyway</td>
<td>65</td>
<td>47</td>
</tr>
<tr>
<td>East 20th St.–SR 32</td>
<td>65</td>
<td>52</td>
</tr>
<tr>
<td>SR 32–Cohasset Rd</td>
<td>65</td>
<td>52</td>
</tr>
<tr>
<td>SR 7C–Feather River Blvd</td>
<td>35</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: Fehr & Peers 2009; VEHSPEED.WKS

EMFAC 2007 modeling procedures followed the guidelines recommended by the California Department of Transportation (Caltrans). The program assumed Butte County regional traffic data operating during the winter months. Mean winter temperatures of 35° F and 36° F were used for segments on SR 99 and SR 162, respectively. A relative humidity of 30% was assumed.

**Receptor Locations:** CO concentrations were estimated at six receptor locations along each of the five roadway segments for a total of 30 receptors. The receptors were placed perpendicular to the roadway’s edge, with one receptor placed at each of the following distances: 3’, 25’, 50’, 100’, 250’, and 500’. Receptor heights were set at 5.9 feet.

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Metrological Conditions: Meteorological inputs to the CALINE4 model were determined using methodology recommended in Caltrans’ Air Quality Technical Analysis Notes. The meteorological conditions used in the modeling represented a calm winter period. Worst-case wind angles were modeled to determine a worst-case concentration for each receptor. Additional meteorological inputs included: 0.5 meters per second wind speed, ground-level temperature inversion (atmospheric stability class G), wind direction standard deviation equal to 5 degrees, ambient temperature of 40°F and 41°F, roadway mixing width of 68 feet, and a mixing height of 1,000 meters.

Background Conditions: To account for sources of CO not included in the modeling, a background concentration of 3.56 ppm was added to the modeled cumulative 1-hour values, while a background concentration of 2.43 ppm was added to the modeled cumulative 8-hour values. Maximum monitored 1- and 8-hour CO values from the Chico monitoring station for the years 2006–2008 were averaged to obtain these concentrations. The monitored values were obtained from the EPA’s Air Data webpage. The 8-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.6. Background concentrations for future year (2030) conditions were assumed to be the same as those for the current year. Actual 1- and 8-hour background concentrations in future years would likely be lower than those used in the CO modeling analysis because the trend in CO emissions and concentrations is decreasing due to the ARB’s Mobile Source Program. The Mobile Source Program supports replacement of older, higher emitting vehicles with newer vehicles, as well as increasingly stringent inspection and maintenance programs.

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Appendix B

Air Quality Technical Information: Criteria Pollutant Modeling
APPENDIX B. AIR QUALITY TECHNICAL INFORMATION

Criteria Pollutant Modeling

Emissions of Criteria Pollutants

The primary operational emissions associated with the proposed project are CO, PM10, and ozone precursors (ROG and NOx) emitted as vehicle exhaust. The effects of project specific emissions of these criteria pollutants, as well as carbon dioxide (CO2), were evaluated through modeling conducted using the CT-EMFAC 2007 model and traffic data provided by the project traffic engineers.

The CT-EMFAC 2007 Model

CT-EMFAC is a California-specific project-level analysis tool developed for Caltrans by the University of California, Davis to model pollutant and CO2 emissions from on-road mobile sources. The model uses the latest version of the California Mobile Source Emission Inventory and Emission Factors model, EMFAC2007, to quantify running exhaust and running loss emissions using user-input traffic data, including peak-hour and off-peak-hour VMT data allocated into 5-mph speed bins. Running exhaust emissions are emitted from the vehicle tailpipe while the vehicle is traveling, while running loss emissions are evaporative TOG emissions that occur when hot fuel vapors escape from the fuel system or overwhelm the carbon canister while the vehicle is operating. CT-EMFAC will estimate emission factors and project-level emissions for the following pollutants:

- Criteria pollutants: Ozone precursors (ROG and NOx), CO, sulfur oxides, PM10, and PM2.5
- Greenhouse gases: CO2
- Mobile Source Air Toxics: Acrolein, Acetaldehyde, Benzene, 1,3-Butadiene, Diesel particulate matter (DPM), Formaldehyde

Modeling Procedures

Roadway Traffic Conditions: Modeled traffic volumes and operating conditions were obtained from the traffic data prepared by the project traffic engineers. Emissions of ozone precursors (ROG and NOx), CO, PM10, PM2.5, and CO2 for were modeled for three conditions: existing year (2006) and 2030 with and without project conditions. Traffic data used in the modeling was allocated into 5 mile per hour (mph) speed bins from 5 to 75 mph. VMT data included vehicle activity for the entire county and is summarized in Table 1.

Vehicle Emissions Rates: Vehicle emission rates were determined using Caltrans’ CT-EMFAC model. VMT distribution by speed bin is presented in Table 1. The CT-EMFAC model assumed the Butte County regional traffic data, operating over an annual season.
<table>
<thead>
<tr>
<th>Speed Bin</th>
<th>Existing (2006)</th>
<th>2030 Without Project</th>
<th>2030 With Project</th>
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<tbody>
<tr>
<td></td>
<td>VMT</td>
<td>% VMT</td>
<td>VMT</td>
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<tr>
<td>5</td>
<td>9,427</td>
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<td>8,351</td>
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<tr>
<td>10</td>
<td>41,731</td>
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<td>45,103</td>
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<td>10,661</td>
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<td>651,403</td>
<td>10.31%</td>
<td>668,044</td>
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<td>3.15%</td>
<td>206,078</td>
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<td>35</td>
<td>1,320,747</td>
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<td>488,054</td>
<td>7.73%</td>
<td>452,165</td>
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<td>45</td>
<td>633,390</td>
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<td>729,471</td>
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<tr>
<td>50</td>
<td>504,118</td>
<td>7.98%</td>
<td>435,825</td>
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<tr>
<td>55</td>
<td>833,907</td>
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<td>912,494</td>
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<td>129,960</td>
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<td>65</td>
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<td>75</td>
<td>0</td>
<td>0.00%</td>
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<tr>
<td>Total</td>
<td>6,315,388</td>
<td>100.00%</td>
<td>6,428,686</td>
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Appendix C

Additional Environmental Protections
Appendix C: Additional Environmental Protections

This appendix lists project-specific implementation and mitigation measures that shall be required for certain projects if the particular species and/or habitats will potentially be impacted by the project, unless a permit has been issued under an approved Habitat Conservation Plan. Necessary surveys shall be performed and impacts shall be assessed prior to completion of an environmental evaluation pursuant to CEQA for an individual project with the potential to impact particular species and/or habitats. Compensation and mitigation for impacted habitat shall be applied as mitigation measures/conditions of approval on specific entitlements and permits.

1. Vernal Pool Branchiopods
   a. Retain a qualified biologist to determine if suitable habitat for listed vernal pool branchiopods is present in the project area and within 250 feet of the project area. If suitable habitat for vernal pool branchiopods is found, the project proponent shall avoid these habitats by establishing a buffer zone for each habitat, assume presence, with USFWS approval, or conduct protocol-level surveys. The sizes of buffer zones shall be determined in consultation with the USFWS. Where avoidance is not feasible, 1b and 1c shall be implemented.
   b. If it is not feasible to avoid habitat for listed vernal pool branchiopods (both directly and indirectly), a qualified biologist with a 10(a)(1)(A) permit for vernal pool branchiopods shall complete protocol-level surveys to determine whether vernal pool branchiopods are present in the identified suitable habitat. Protocol-level surveys require 2 years of wet-season surveys or 1 year each of wet and dry season surveys. If a listed species is found, 1c, below shall be required.
   c. If it is determined that the proposed project would have direct or indirect impacts on vernal pool branchiopods, compensation for these impacts shall occur through preserving and creating additional habitat for these species or purchasing vernal pool preservation and/or creation credits at an existing mitigation bank using USFWS-approved compensation ratios. The project proponent shall preserve suitable habitat or purchase equivalent mitigation credits at a minimum ratio of 2:1 (2 acres preserved for every 1 acre of habitat directly or indirectly affected), and shall create suitable habitat at a minimum ratio of 1:1 (1 acre created for every acre lost). Preservation of habitat shall occur at a USFWS-approved mitigation bank or conservation area. Final compensation requirements and mitigation ratios for the project shall be determined through consultation with the USFWS.

2. Valley Elderberry Longhorn Beetle
   a. A qualified biologist shall survey the proposed project site and a 100-foot wide buffer for the presence of valley elderberry longhorn beetle and its habitat (elderberry shrubs). Surveys shall follow USFWS guidelines\(^1\) and locations of elderberry shrubs shall be mapped. If shrubs contain stems that are 1.0 inch or greater in diameter, #2b and/or #2c shall be implemented.
   b. Elderberry shrubs shall be avoided wherever possible. Core avoidance areas shall not be disturbed during construction and include all areas within 20 feet of the dripline of any elderberry shrub with a stem measuring 1.0 inch or greater in diameter at ground level. Buffer avoidance areas include all the area within 100 feet of any elderberry shrub with a stem measuring 1.0 inch or greater at ground level. If complete avoidance within a 100-foot buffer is

not possible, the USFWS shall be consulted before any disturbances within the buffer area are considered. Standard protective measures according to USFWS guidelines shall be implemented. If avoidance is not possible, #2c below shall be implemented.

c. If elderberry shrubs cannot be avoided, elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level shall be transplanted to a mitigation area. The mitigation area shall provide at least 1,800 square feet for each transplanted elderberry shrub and follow USFWS guidelines for additional elderberry seedlings and other associated native plants to be planted within the area. Transplanting of elderberry shrubs and monitoring of the mitigation area shall follow USFWS guidelines.

3. California Tiger Salamander and California Red-Legged Frog

a. A qualified biologist shall conduct a site assessment in accordance with USFWS’ and CDFG’s guidelines\(^2\) to evaluate whether or not suitable aquatic and/or upland habitat for California tiger salamanders is present in or near the proposed project area. If USFWS and CDFG determine that suitable habitat for California tiger salamander is present within or near a proposed project area, the project proponent shall either assume presence, with USFWS and CDFG approval, or conduct protocol-level surveys to determine presence or absence, if recommended by USFWS and CDFG. If USFWS and CDFG recommend protocol-level surveys, the USFWS and CDFG guidelines shall be followed.

b. A qualified biologist shall conduct a site assessment in accordance with USFWS’ guidelines\(^3\) to evaluate whether or not suitable aquatic and/or upland habitat for California red-legged frogs is present in or near the proposed project area. If USFWS determines that suitable habitat for California red-legged frog is present within or near a proposed project area, the project proponent shall either assume presence, with USFWS approval, or conduct protocol-level surveys to determine presence or absence, if recommended by USFWS. If USFWS recommends protocol-level surveys, the USFWS guidelines shall be followed.

c. If California tiger salamanders or California red-legged frogs are determined or assumed to be present as described above, the project proponent or their contractor shall implement the following measures before and during construction activities occurring within suitable habitat to minimize both direct and indirect impacts on these species. USFWS may determine additional avoidance, minimization, and compensation requirements during the Section 7 or 10 process.

- Ground disturbing activities construction activities shall be limited to the period from May 1 through October 15.
- The project proponent shall retain a qualified wildlife biologist to conduct preconstruction surveys immediately preceding a construction activity that occurs in California tiger salamander or California red-legged frog habitat (aquatic or upland) or an activity that may result injury or mortality of these species.
- Aquatic habitat areas shall be fenced off or clearly staked and flagged as sensitive areas to ensure that no construction will occur within these areas.
- A USFWS approved biologist shall monitor all ground disturbing construction activities. After ground disturbing project activities are complete, the USFWS approved biologist

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shall train an individual to act as the on-site construction monitor.

- An erosion and sediment control plan shall be prepared that will include measures to prevent impacts to wetlands and aquatic habitat outside of the proposed project area. Tightly woven fiber netting or similar material shall not be used for erosion control or other purposes at the project site to ensure that frogs and salamanders do not get trapped. Plastic monofilament matting shall not be used for erosion control.
- Access routes to proposed project area and the size of staging and work areas shall be limited to the minimum necessary to achieve the project goals. Routes and boundaries of the access roads prior to initiating construction/grading shall be clearly marked.
- All food and food-related trash shall be stored away from sensitive areas and enclosed in sealed trash containers at the end of each workday. Food-related trash removal shall occur no less than every 3 days.
- Pets shall not be allowed on the construction site.
- Speed limits of 15 mph shall be maintained on dirt roads and other access areas.
- All equipment shall be maintained such that there will be no leakage of automotive fluids such as fuels, oils, and solvents. Any fuel or oil leaks shall be cleaned up immediately and disposed of properly.
- All hazardous materials such as fuels, oils, and solvents shall be stored in sealable containers in a designated location that is at least 200 feet from the drainages or other aquatic habitats. All fueling and maintenance of vehicles and other equipment shall occur at least 200 feet from these areas.
- If a California tiger salamander or California red-legged frog is encountered during any project activities, activities shall cease until the salamander or frog is removed by a USFWS-approved biologist (and only if authorized in the Biological Opinion or Incidental Take Permit) and relocated to nearby suitable aquatic habitat. USFWS and CDFG shall be notified within 1 working day of any California tiger salamander or California red-legged frog relocation.

**d.** If California tiger salamander or California red-legged frog presence is determined or assumed, consultation with the CDFG and USFWS shall be required. Permanent and temporary effects on aquatic and upland habitat shall be compensated through onsite or offsite habitat restoration and/or preservation at a new or established conservation area, purchasing mitigation credits at an existing USFWS approved conservation bank, contributing funds to a CDFG or USFWS approved species fund to support habitat preservation and restoration for these species, or a combination of these options. Final compensation requirements associated with the proposed project shall be determined through consultation with the CDFG and USFWS. Mitigation credits shall be purchased, or a conservation area and management plan shall be established, prior to any ground-disturbing activities, including grading, in the project area.

### 4. Western Spadefoot

Impacts on western spadefoot shall be avoided or minimized by implementing the following measures:

- Conduct in-water work during the dry period of the year to avoid impacts on larval toads.
- A qualified biologist with a valid scientific collecting permit shall obtain a memorandum of understanding (MOU) from CDFG that allows the biologist to move toads from the construction area if needed (as described below).
- A qualified biologist shall conduct a preconstruction survey in suitable habitat areas (vernal pools, seasonal wetlands, and other seasonal pools) no more than 24 hours before the start of construction and move any toads within the construction area. If suitable habitat areas will be filled or dewatered during construction, these areas shall be fenced to exclude toads from reentering the construction area.

If western spadefoot is known to occur in the project area, and ground disturbance of upland aestivation habitat will occur, burrows shall be surveyed with a burrow probe and collapsed prior to ground disturbance, as feasible. Any western toads found within burrows shall be relocated to burrows outside of the construction area within suitable habitat.

### 5. Foothill Yellow-Legged Frog

Impacts on foothill yellow-legged frog shall be avoided or minimized by implementing the following measures:

- Conduct in-water work during the low flow period of the year, preferably in late August or September, to avoid impacts on larval foothill yellow-legged frogs.
- A qualified biologist with a valid scientific collecting permit shall obtain a MOU from CDFG that allows the biologist to move foothill yellow-legged frogs from the construction area if needed.
- A qualified biologist shall conduct a preconstruction survey along suitable creeks within and adjacent to the project area no more than 24 hours before the start of construction and move any frogs within the construction area downstream and outside of the construction area. If the channel will be dewatered during construction, the dewatered area shall be fenced to exclude frogs from reentering the construction area.

### 6. Cascades Frog and Sierra Nevada Yellow-Legged Frog

Impacts on Cascades frog or Sierra Nevada yellow-legged frog shall be avoided or minimized by implementing the following measures:

- A qualified biologist with a valid scientific collecting permit shall obtain a MOU from CDFG that allows the biologist to move Cascades frog and/or Sierra Nevada yellow-legged frogs from the construction area if needed.
- A qualified biologist shall conduct a preconstruction survey along suitable aquatic habitat (ponds and slow moving streams for Cascades frog and streams, ponds, and lakes for Sierra Nevada yellow-legged frog) within and adjacent to the project area no more than 24 hours before the start of construction and move any frogs within the construction area downstream and outside of the construction area. If the aquatic habitat will be dewatered during construction, the dewatered area shall be fenced to exclude frogs from reentering the construction area.

### 7. Northwestern Pond Turtle

Impacts on northwestern pond turtle shall be avoided or minimized by implementing the following measures:

- Preconstruction surveys for northwestern pond turtles in suitable aquatic and upland habitat shall be conducted by a qualified biologist 2 weeks before and 24 hours before
the start of construction activities in streams, irrigation canals, and sloughs where suitable habitat exists. If a turtle is located within the construction area, the turtle shall be relocated out of this area by a qualified biologist with an MOU from CDFG. Exclusion fencing shall be installed to prevent the movement of turtles back into the construction area or a qualified wildlife biologist shall be retained to monitor the area for turtles during construction.

- Minimize grading and construction activities along the shore/banks of ponds, lakes, marshes, rivers, streams, and irrigation ditches and within 1,000 feet of these areas between October 15 and April 15 to reduce potential mortality to hibernating turtles.
- If a turtle becomes trapped during construction activities within the waterway, the turtle shall be removed from the work area by a qualified biologist with an MOU from CDFG and placed downstream from the project site.
- The construction area shall be clearly defined, using orange barrier fencing, to minimize disturbance to riparian vegetation and western pond turtle habitat.
- If nesting areas for northwestern pond turtles are identified in the study area during preconstruction surveys, a buffer of 300 feet shall be established between the nesting site and the construction area.
- Buffers shall be established using temporary fencing if construction begins before the nesting period ends (egg laying to emergence of hatchlings is normally from April to November).

<table>
<thead>
<tr>
<th>8. California Horned Lizard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impacts on California horned lizard shall be avoided or minimized by implementing the following measures:</td>
</tr>
<tr>
<td>- Future project proponents shall work with a qualified biologist with a valid scientific collecting permit to obtain an MOU for moving California horned lizards, if necessary.</td>
</tr>
<tr>
<td>- The qualified wildlife biologist shall conduct a preconstruction survey for California horned lizard no more than 24 hours before the start of construction. If lizards are discovered, the biologist shall move any lizards within the construction area to suitable habitat outside the construction area and either construct exclusion fencing to prevent lizard entry into the construction area or retain a qualified wildlife biologist to monitor the area for lizards during construction.</td>
</tr>
<tr>
<td>- If the proposed project precludes the implementation of the above listed avoidance measures, the project proponent shall consult with CDFG to determine alternative avoidance measures.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Giant Garter Snake</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. A qualified biologist shall be retained to determine if suitable habitat for giant garter snake is present in or near the project area. If recommended by USFWS and/or CDFG, trapping surveys by a permitted biologist shall be conducted to determine the presence or absence of this species. If giant garter snakes or their habitat are found within the project area, #9b and 9c, below shall be implemented.</td>
</tr>
<tr>
<td>b. Impacts on giant garter snake shall be avoided or minimized by implementing the following measures:</td>
</tr>
</tbody>
</table>
• To reduce direct impacts on giant garter snakes, all construction activity in giant garter snake habitat shall be conducted between May 1 and October 1 because this is the period when snakes are active and can avoid danger. If construction activities are necessary in giant garter snake habitat between October 2 and April 30, the USFWS and CDFG shall be contacted to determine whether additional measures are necessary to minimize take.

• Any dewatered habitat (e.g., drainage crossings) shall remain dry for at least 15 consecutive days after April 15 and before trenching through and backfilling the dewatered habitat.

• A USFWS-approved biologist shall conduct a preconstruction survey in suitable habitat no more than 24 hours before construction and shall be onsite during activity within 200 feet of potential aquatic habitat. The project area shall be re-inspected whenever a lapse in construction activity of 2 weeks or more has occurred.

• Vegetation clearing within 200 feet of the banks of potential giant garter snake aquatic habitat shall be limited to the minimum area necessary.

• The movement of heavy equipment within 200 feet of the banks of potential giant garter snake aquatic habitat shall be confined to existing roadways to minimize habitat disturbance.

• Before ground disturbance, all construction personnel shall participate in a USFWS-approved worker environmental awareness program.

• If wetlands, irrigation ditches, marshes, etc. cannot be relocated in the project vicinity, the aquatic habitat shall be dewatered at least 2 weeks before construction begins.

• To ensure that construction equipment and personnel do not affect aquatic habitat for giant garter snake outside the construction corridor, orange barrier fencing shall be erected to clearly define the aquatic habitat to be avoided. Erosion control measures shall be implemented as necessary to prevent sediment and contaminants from entering aquatic habitat.

• All vehicle traffic on access roads near giant garter snake habitat shall observe a speed limit of 15 mph to prevent vehicles from running over giant garter snakes basking on access roads.

• Other provisions of the USFWS Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake Habitat4.

c. Compensate for the permanent and temporary loss of giant garter snake habitat. The following are typical impact minimization and compensation measures required by USFWS under the programmatic consultation for USACE 404 permitted projects with small effects (less than 3 acres of permanent losses including upland and aquatic components with no more than 1 acre of aquatic losses) on giant garter snake.

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- Habitat that is permanently affected shall be replaced at a ratio of up to 3:1 at a USFWS approved mitigation bank or by paying in-lieu fees to a USFWS approved giant garter snake fund. All replacement habitat shall include upland and aquatic habitat components at a ratio of 2:1 (upland acres to aquatic acres).
- After completion of construction activities, any temporary fill or construction debris shall be removed and disturbed areas restored to pre-project conditions. A photo documentation report with pre- and post-project photos is due 1 year from implementation of the restoration.

### 10. Western Burrowing Owl
To comply with federal and state regulations that protect raptors, preconstruction surveys for burrowing owls shall be completed, in conformance with CDFG guidelines, prior to the start of construction within suitable habitat. The preconstruction surveys shall include breeding season surveys and wintering season surveys. If no burrowing owls are detected, no further mitigation shall be required. However, if breeding or resident owls are located on or immediately adjacent to the site, the following measures shall be implemented:

- Burrowing owls shall not be evicted from burrows during the nesting season (February 1 through August 31). Eviction outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written approval from the CDFG authorizing the eviction;
- A 250-foot buffer, within which no new activity would be permissible, shall be maintained between project activities and nesting burrowing owls. This protected area shall remain in effect until August 31, or at the CDFG's discretion and based upon monitoring evidence, until the young owls are foraging independently; and
- If accidental take (disturbance, injury, or death of owls) occurs, the CDFG shall be notified immediately

If burrowing owls are present at the project site and avoiding construction in occupied areas is not feasible, then habitat compensation at off-site mitigation lands shall be required. Habitat Management lands comprising existing burrowing owl foraging and breeding habitat shall be acquired and preserved. An area of 6.5 acres (the amount of land found to be necessary to sustain a pair or an individual owl) will be secured for each pair of owls, or individual in the case of an odd number of birds.

### 11. Swainson’s Hawk
Impacts on Swainson’s hawk shall be avoided or minimized by implementing the following measures:

- If future project facilities are constructed on lands identified as suitable foraging habitat for Swainson's hawks, i.e., within 5 miles from the nearest active nest, then the loss shall be mitigated by providing offsite Habitat Management lands. The final acreage of offsite management lands to be provided shall depend on the distance between the project area and the nearest active nest site. Prior to grading of any site with potential habitats.

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5 California Department of Fish and Game. 1995. *Staff Report on Burrowing Owl Mitigation*. Sacramento, CA.
6 California Department of Fish and Game. 1994. *Staff Report Regarding Mitigation for Impacts to Swainson’s Hawks (Buteo swainsoni) in the Central Valley of California*. Sacramento, CA.
foraging habitat, the CNDDB shall be searched or site specific surveys shall be conducted to determine the nearest active nest. Based on the results of the CNDDB search or surveys, the project proponent shall compensate for losses as recommended by CDFG.

- In order to ensure that nesting Swainson’s hawks will not be disturbed by construction activities, a qualified biologist shall conduct preconstruction surveys of project sites and adjacent areas within 1 mile of the project site. Survey Period I occurs from January 1 to March 20, Period II from March 20 to April 5, Period III from April 5 to April 20, Period IV from April 21 to June 10 (surveys are not recommended during this period because identification is difficult as the adults tend to remain within the nest for longer periods of time), and Period V from June 10 to July 30. No fewer than three surveys shall be completed, in at least each of the two survey periods immediately prior to project initiation. If a nest site is found, consultation with CDFG shall be required to ensure project initiation will not result in nest disturbance.

12. Nesting Birds, including State-listed threatened species (Swainson’s hawk, California black rail, greater sandhill crane, and bank swallow), State-listed endangered species (bald eagle, western yellow-billed cuckoo and American peregrine falcon), and California species of special concern or fully protected species (white-tailed kite, northern harrier, northern goshawk, golden eagle, western burrowing owl, short-eared owl, California spotted owl, black swift, Vaux’s swift, loggerhead shrike, yellow-breasted chat, tricolored blackbird, and yellow warbler).

a. To avoid or minimize impacts on nesting birds, construction activities (including tree and shrub removal) shall occur during the non-breeding season for most migratory birds (generally between September 1 and January 31). If construction activities cannot be conducted during the nonbreeding season, a qualified wildlife biologist with knowledge of the relevant species shall be retained to conduct nesting surveys before the start of construction. Surveys for nesting migratory birds shall be conducted within 15 days prior to the initiation of construction activities (including tree and shrub removal) that are scheduled to begin during the breeding season. Trees and shrubs in the project area and immediately adjacent to the project area shall be surveyed. A minimum of three separate surveys shall be conducted in the 15 day survey period. If active nests are detected during these surveys, #12b and/or 12c below shall be implemented.

b. If migratory bird nests are found within the survey area, a no-disturbance buffer shall be established around the site to avoid disturbance or destruction of the nest site until the end of the breeding season (August 15) or until after a qualified wildlife biologist determines that the young have fledged (this date varies by species). The extent of these buffers shall be determined by the biologist in coordination with CDFG and shall depend on the level of noise or construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. Buffer distances may vary between species. If more than 15 days pass between the surveys and the initiation of construction, another survey shall be conducted.

c. If trees with active nests of species protected under the MBTA and California Fish and Game Code cannot be avoided during project construction, authorization for tree removal shall be obtained from CDFG and/or USWFS, who may require compensation for the loss.
13. Bats

To avoid or minimize impacts on bats, a qualified biologist shall conduct initial visual surveys of the project area for suitable roosting sites and to look for evidence of use by bats. The biologist shall assess if bridges or other structures, as well as suitable cavities in trees are being used as day, night, and/or maternal roosts. If maternity colonies are found within a project area, a qualified biologist shall conduct a nighttime emergence survey (acoustic and visual data collection) for bats twice between April and August before construction begins to determine what species are present and if the roosts are maternity roosts. If bat maternity roosts are located or are presumed present, work shall be avoided until after migration in late fall (October) when bats are less likely to be roosting (once construction activities have begun, bats will be less likely to use the area for roosting because of the increased activity in the area). If maternity roosts are not present, but other day or night roosts are located, where possible, the biologist shall exclude the bats from these roosts prior to construction, or alternately all construction shall be postponed until the bats have migrated from the roosts. If the bats are resident species that could potentially hibernate onsite, the biologist shall exclude the bats from the roosting structure, where possible, prior to the hibernation period and before construction begins. If construction during this time period is not possible, compensatory mitigation for the loss of roosting habitat shall be determined in consultation with CDFG and may include the construction and installation of suitable replacement habitat onsite.
Appendix D

Current and Projected Noise Contour Maps
Base Map Data Source: California Spatial Information Library

- Studied Roadways
- Studied Railways
- Population Centers
- County Line

Map 7
Map 8
Map 9
Map 10
Map 11
Map 12
Map 13
Map 14
Map 15
Map 16
Map 17
Map 18

Sheet Index for Noise Contour Maps
Base Map Data Source: California Spatial Information Library
APPENDIX E

AIRPORT NOISE CONTOUR MAPS FROM 2000 AIRPORT LAND USE COMPATIBILITY PLAN
Exhibit 4F

Noise Impacts — Expanded Forecast
Chico Municipal Airport
Noise Impacts — Future Average Fire Season Day
Chico Municipal Airport
Noise Impacts
Oroville Municipal Airport
Noise Impacts
Paradise Skypark Airport
Exhibit 7E

Noise Impacts
Ranchaero Airport
Appendix F

Greenhouse Gas Emissions Inventory and Forecast Methodology
Appendix F: Greenhouse Gas Emissions Inventory and Forecast Methodology

Greenhouse Gas Inventory and Forecasts for 2020 and 2030
GHG emissions were inventoried from the unincorporated areas of Butte County. The forecast years of 2020 and 2030 were chosen to be consistent with the State’s GHG reduction goals and the Butte County General Plan 2030, respectively. Table F-1 summarizes greenhouse gas emissions in unincorporated Butte County for the inventory year 2006 and Table F-2 summarizes projected emissions in 2020 and 2030 assuming buildout of the General Plan 2030.

Table F-1 Butte County Greenhouse Gas Emissions Estimate, 2006

<table>
<thead>
<tr>
<th>Source</th>
<th>GHG Emissions (metric tons CO2e)</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation : On-Road Vehicles</td>
<td>295,570</td>
<td>49.2</td>
</tr>
<tr>
<td>Transportation: Off-Road Vehicles/Equipment</td>
<td>40,939</td>
<td>6.8</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>62,241</td>
<td>10.3</td>
</tr>
<tr>
<td>Electricity</td>
<td>106,977</td>
<td>17.8</td>
</tr>
<tr>
<td>Stationary Sources</td>
<td>4,093</td>
<td>0.7</td>
</tr>
<tr>
<td>Waste -Landfills (waste in place)</td>
<td>14,247</td>
<td>2.4</td>
</tr>
<tr>
<td>Waste -Single Year (future waste commitment)</td>
<td>17,873</td>
<td>Not included</td>
</tr>
<tr>
<td>Agricultural Vehicles/Equipment</td>
<td>77,019</td>
<td>12.8</td>
</tr>
<tr>
<td>Total</td>
<td>601,266</td>
<td>100</td>
</tr>
</tbody>
</table>

1 Provided for informational purposes only. Uses 2008 data and assumes all waste was deposited at facilities with a gas capture system.
### Table F-2 Butte County Greenhouse Gas Emissions Estimate, 2020 and 2030

<table>
<thead>
<tr>
<th>Source</th>
<th>2020 GHG Emissions (metric tons CO2e)</th>
<th>% of 2020 Total</th>
<th>2030 GHG Emissions (metric tons CO2e)</th>
<th>% of 2030 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation: On-Road Vehicles</td>
<td>355,386 (281,466)(^1)</td>
<td>49.7</td>
<td>394,258 (312,252)(^1)</td>
<td>49.1</td>
</tr>
<tr>
<td>Transportation: Off-Road Vehicles/Equipment</td>
<td>51,105 (47,681)(^2)</td>
<td>7.2</td>
<td>63,695 (59,428)(^2)</td>
<td>7.9</td>
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<tr>
<td>Natural Gas</td>
<td>75,668</td>
<td>10.6</td>
<td>87,167</td>
<td>10.9</td>
</tr>
<tr>
<td>Electricity</td>
<td>130,055(110,157)(^3)</td>
<td>18.2</td>
<td>149,819(126,896)(^3)</td>
<td>18.6</td>
</tr>
<tr>
<td>Stationary Sources</td>
<td>4,906</td>
<td>0.7</td>
<td>5,540</td>
<td>0.7</td>
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<tr>
<td>Waste-Landfills (waste in place)</td>
<td>21,295</td>
<td>3.0</td>
<td>27,232</td>
<td>3.4</td>
</tr>
<tr>
<td>Waste-Single Year (future waste commitment)(^4)</td>
<td>21,729</td>
<td>Not included</td>
<td>25,030</td>
<td>Not included</td>
</tr>
<tr>
<td>Agricultural Vehicles/Equipment</td>
<td>76,025 (70,931)(^2)</td>
<td>10.6</td>
<td>75,870 (70,787)(^2)</td>
<td>9.4</td>
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<tr>
<td>Total</td>
<td>714,440</td>
<td>100.0</td>
<td>803,582</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\(^1\) Accounts for Pavley I, II and Low Carbon Fuel Standard and assumes no strengthening of these standards between 2020 and 2030.

\(^2\) Accounts for Low Carbon Fuel Standard.

\(^3\) Accounts for the adopted SB 1078/SB 107 Renewables Portfolio Standard.

\(^4\) Provided for informational purposes only and assumes all waste deposited at facilities with a gas capture system.

The baseline year 2006 was chosen based on availability of information. In cases where 2006 data was unavailable, 2007 or other recent-year data was substituted. Community wide GHG emissions were estimated for the following sectors: on-road transportation vehicles; off-road transportation vehicles and equipment; electricity and natural gas consumption related to current and new residential, commercial, and industrial development; stationary sources, waste; and agricultural vehicles. The future waste commitment of a single year’s waste is shown for informational purposes only. GHG emissions forecasts were performed for the years 2020 and 2030. Each forecast assumes “business as usual” (BAU) conditions, which essentially scales current emissions on population or other appropriate data, and does not account for any control measures or policies being implemented in the future. The projected 2030 buildout for the proposed General Plan 2030 and Zoning Ordinance indicates that by 2030 the population of Butte County will increase by 33,800 persons. This number was used to scale emissions from all sources except stationary sources where specific data was available from the General Plan and transportation which was modeled by the traffic engineer for future years. The assumptions inherent to those models (largely based on state-wide data) are included in the forecast. For informational purposes only, the impact of adopted State measures (AB 1493, Executive S-1-07, and SB 1078/SB 107) was included in the forecast in parentheses. Examples include the low carbon fuel...
standard and the renewable portfolio standard. A summary of emissions from each category in the inventory for 2006, 2020 and 2030 is provided below and the methodology for each is provided in the following section.

Transportation (On-road vehicles) – Emissions from mobile sources were estimated using Unincorporated County vehicle miles traveled (VMT) as provided by the traffic engineer and the EMFAC model, which includes in its model outputs emissions and fuel economy for passenger vehicles, light and medium duty trucks, heavy duty trucks and buses, motor homes and motorcycles. Total emissions of CO₂, CH₄ and N₂O resulting from the combustion of gasoline or diesel fuel used to power on-road vehicles in the County were 295,570 metric tons CO₂e in 2006. On-road transportation accounted for 49.2% of total County GHG emissions in 2006. Based on data provided by the traffic engineer, VMT for the unincorporated County is expected to increase by roughly 35% by 2030, resulting in a corresponding increase of roughly 35% in GHG emissions from this sector. 2030 transportation related emissions are forecast to be 394,258 metric tons of CO₂e and to comprise 49.1% of the forecast 2030 GHG budget. 2020 VMT was not provided by the traffic engineer, and thus an estimate for 2020 VMT was made from the 2006 and 2030 values. GHG emissions from on-road transportation in 2020 are estimated to be 355,386 metric tons of CO₂e. Emissions reductions resulting from Pavley I and II and the Low Carbon Fuel Standard (LCFS) are estimated to be approximately 14% and 7% below BAU conditions for the transportation sector by 2020 (CARB 2008) according to the AB 32 Scoping Plan. Emissions projections for 2020 and 2030 including reductions achieved through these state measures are shown in parentheses in Table F-2. Data provided by the traffic engineer included pass-through trips in estimates of VMT. These are VMT on Butte County roads that are likely not due to Butte residents and do not originate or terminate at a destination within Butte County.

Transportation (Off-Road vehicles) – GHG emissions also result from the burning of fossil fuels to power off-road vehicles and equipment in the County such as construction and lawn and garden equipment. The California Air Resources Board’s OFFROAD model was used to estimate emissions from these sources for the entire County and results scaled to the unincorporated portion based on the 2009 population distribution. Only the agricultural equipment category was excluded in these model runs. This category is treated separately below. In 2006, total emissions of CO₂, CH₄ and N₂O resulting from the combustion of fossil fuels used to power off-road vehicles and equipment in the County were 40,939 metric tons CO₂e. Off-road vehicles and equipment accounted for 6.8% of total County GHG emissions in 2006. GHG emissions from off-road equipment in 2020 are projected to be 51,105 metric tons CO₂e, or 47,681 metric tons CO₂e if the LCFS is taken into account. OFFROAD model outputs for the year 2030 indicate that emissions from this sector will amount to 63,695 metric tons CO₂e, or 7.9 % of the 2030 budget. Assuming the LCFS is fully implemented in 2030, off-road vehicles and equipment will produce 59,428 metric tons CO₂e.

Natural Gas (Residential, Commercial and Industrial Energy Use) – The on-site combustion of natural gas for heating, cooking or other purposes releases CO₂, CH₄ and N₂O. In 2006, natural gas consumption by residential, commercial and industrial customers resulted in 62,241 metric tons of CO₂e emissions.
Approximately 60% of these emissions are due to natural gas use by residential customers and the remainder to commercial and industrial customers. Future projections (2020 and 2030) of natural gas consumption were obtained by scaling the current year’s estimate by population estimates as provided in the General Plan and assumed no decrease in per capita natural gas consumption through energy efficiency or conservation efforts. Population was assumed to grow linearly out to the 2030 population projection provided in the GP (117,700 persons). In 2020, natural gas consumption is projected to result in 75,668 metric tons of CO2e and 2030, 87,167 metric tons of CO2e. These emissions represent roughly 10% of the future year’s budgets, similar to current conditions.

**Electricity (Residential, Commercial and Industrial Energy Use)** – Electricity generation requiring the combustion of fossil fuels results in the release of CO2, CH4 and N2O. This fuel is combusted at the location of electricity generation, which may be outside of the jurisdictional boundary of Butte County. These emissions are attributed to the County, as activity within the County defines the amount of electricity that must be produced to meet demand. In 2006, electricity consumption in Butte County resulted in 106,977 metric tons of CO2e. 66% of these emissions are due to residential electricity consumption. GHG emissions from this sector are projected to be 130,055 metric tons CO2e and 149,819 metric tons CO2e in 2020 and 2030, respectively. SB 1078 and SB 107 (The Renewables Portfolio Standard) set forth a requirement that by 2020, 33% of the state’s power portfolio will come from renewable sources. If this target is met, a reduction of roughly 15.3% will be realized in the electricity sector (AB 32 Scoping Plan). GHG emissions accounting for full realization of the RPS in 2020 and 2030 are shown in parentheses above. Table F-2 does not take into account improvements in building energy efficiency as required by Title 24, other increases in efficiency or increases in voluntary energy conservation by consumers. It is likely that by 2020 and/or 2030 these factors will add additional reductions to those shown in Table F-2.

**Stationary Sources** – In 2006, fuel consumption (excluding natural gas and automotive gasoline) by industrial sources resulted in 4,093 metric tons of CO2e. Stationary sources in Butte County compose less than one percent of the 2006 GHG inventory and are largely focused around agricultural post-processing, storage and transport. 2020 and 2030 stationary source emissions were obtained by scaling the 2006 emissions based on projections of industrial growth as outlined in the EIR Project Description (Chapter 3). GHG emissions from stationary sources in 2020 and 2030 are projected to be 4,906 and 5,540 metric tons of CO2e respectively, or 0.7% (2020) and 0.7% (2030) of the County’s total.

**Waste** – GHG emissions associated with waste are due to methane generated in the breakdown of solid organic material under anaerobic conditions typical of landfills. GHG emissions from solid waste were estimated from two sources: 1) the methane emitted in a single year from waste in place at the Neal Road Recycling and Waste Facility and 2) the methane generation potential over the degradation period of the waste for the total amount of waste produced in unincorporated Butte County for a single year (inventory or forecast year), also known as the “future waste commitment”. The future waste commitment is provided for informational purposes only and is not included in the inventory total.

**Waste (Landfills, waste in place)** - The Neal Road Recycling and Waste Facility accepts waste from numerous jurisdictions, including Butte County, and will continue to generate methane emissions
regardless of the County’s current and future inputs to the facility due to waste deposited in the facility between 1965 and 2009. Based on yearly depositional data and the most recent total waste in place estimate obtained from the California Integrated Waste Management Board (CIWMB),\(^1\) the Neal Road Facility was estimated to contain roughly 2,749,105 tons of waste in place in 2008. 2006 waste in place information data was not available. The IPCC First Order Decay model was used to estimate yearly methane emissions from waste in place. Assuming 75% efficiency from flaring technology at the facility, GHG emissions due to waste in place at the Neal Road Facility were 14,247 metric tons of CO2e in 2008. This accounts for 2.4% of Butte County’s inventory. The Neal Road Facility was opened in 1965 and is scheduled to close in 2033. For the 2020 and 2030 forecasts, it was assumed that the annual waste deposited in the landfill would follow population growth trends for Butte County as projected in the General Plan (1.5% per year) and by the California Department of Finance (1.6% per year). Assuming that per capita waste generation does not decline in the future the Neal Road facility is projected to contain 4,859,157 tons of waste in 2020 and 6,969,927 tons of waste in 2030. Assuming that flaring technology maintains 75% efficiency, waste in place emissions will result in 21,295 metric tons of CO2e in 2020 and 27,232 metric tons of CO2e in 2030. Landfill emissions account for 3.0% of Butte County’s forecasted 2020 inventory and 3.4% of Butte County’s forecasted 2030 inventory. Modifications to the flaring system or gas to energy system that result in greater efficiency or increased waste diversion in future years would reduce this estimate. Additionally, reductions in per capita waste generation due to increased recycling, composting or other waste diversion would also reduce these forecasts.

**Waste (Single Year, future waste commitment)** - In 2008, Butte County produced 66,467 tons of solid waste, all of which was buried in landfills in California.\(^2\) 2006 data was not available through the CIWMB. In 2008, 79% of Butte County’s waste was deposited at the Neal Road Facility, with lesser amounts going to the Ostrom Road Facility, Sacramento Facility (Kiefer) and others in that order for tons deposited.\(^3\) The Neal Road, Ostrom Road and Sacramento (Kiefer) facilities all have methane flaring systems currently installed and it was assumed for the purposes of this analysis that all waste was deposited in facilities with some type of gas capture system. Resulting methane emissions reflect the fact that flaring systems can have in excess of 75% efficiency.\(^4\) For waste generated in 2008 in Butte County, 17,873 metric tons of CO2e are expected to be emitted over the degradation time of the waste. Based on projected population growth described in the EIR Chapter 3, and assuming that per capita waste generation remains constant at the 2008 level, it is estimated that Butte County will produce 80,806 tons of solid waste in 2020 and 93,085 tons of solid waste in 2030. Waste deposited in 2020 will produce 21,729 metric tons of CO2e over the degradation period of the waste and waste deposited in 2030 will


yield 25,030 metric tons of CO$_2$e. Emissions from this source are included for informational purposes only and are not counted in the inventory and forecast totals. These emissions are included because this sector may offer more opportunities for implementing GHG reduction measures at the local level than the landfills that already have gas flaring or gas to energy systems installed.

**Agriculture** - GHG emissions from agriculture are related to fuel use for equipment and vehicles, fertilizer use, methane emissions from livestock, rice cultivation, agricultural practices and embodied emissions associated with water usage. Only emissions from agricultural equipment and vehicles were quantified in this inventory. OFFROAD model runs indicate that agricultural equipment and vehicles resulted in 77,019 metric tons of CO2e in 2006 and are projected to result in 76,025 and 75,870 metric tons CO2e in 2020 and 2030 respectively. This decrease likely reflects improvements in emissions technologies for equipment and vehicles in the future.

Methane is produced during flooded rice cultivation by the anaerobic (without oxygen) decomposition of organic matter in the soil. Flooded soils are ideal environments for methane production because of their high levels of organic substrates, oxygen-depleted conditions, and moisture. Nationwide, rice cultivation resulted in release of 6,200,000 metric tons of CO2e in 2007. Rice is one of the three most land-intensive crops in Butte County, which, along with walnuts and almonds, account for a third of the County’s total agricultural acreage. According to a U.C. Davis study on rice cultivation in California, Butte County had nearly 100,000 acres devoted to rice in 1996. Emissions vary considerably depending on soil conditions, farming practices and climate. Emissions from this source were not quantified for this inventory since accurate estimates would require site specific information that was not available at the time of this analysis. This source should be considered to the extent feasible in subsequent inventories.

Quantitative estimates of emissions from fertilizer, livestock and water usage require detailed information regarding fertilizer type and usage, as well as the day to day practices that vary substantially from farm to farm depending on size, location and primary crops or livestock. These emissions are not included in the inventory presented here but should be considered in future inventories as methodology for assessing these emissions improves and as site specific data becomes available. In the United States, agriculture represents 8.6% of the nation’s total greenhouse gas emissions, including 80% of its nitrous oxide emissions and 31% of its methane emissions.

**Summary:** In 2006, on-road vehicles (49.2%), energy usage (28.1%, natural gas and electricity) and agricultural equipment (12.8%) accounted for the majority of Butte County’s emissions. Emissions from off-road equipment, waste in place at the landfill and stationary sources contributed 6.8%, 2.4% and 0.7% respectively. Total emissions in Butte County for 2006 were 601,266 metric tons CO2e. Total

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emissions for the state of California in 2006 were 483,900,000 metric tons of CO2e. In 2020, total emissions for Butte County are estimated to be 714,440 metric tons of CO2e. Assuming full implementation of the Pavley standards (AB1493), low carbon fuel standard (S-01-07), and renewables portfolio standard (SB 1078/SB 107), Butte County emissions would be reduced by 14.3% as compared to the BAU projection. Executive S-03-05 sets forth a statewide goal of achieving 1990 GHG emissions levels by 2020 or 28.4% below the State’s 2020 BAU forecast. According to Table F-2, additional action is required at the local level in order for Butte County to reach a reduction percentage in 2020 commensurate with the State’s goals. 2030 total emissions for Butte County are estimated to be 803,582 metric tons of CO2e. On-road transportation is estimated to be 49.1% of the total GHG inventory. Residential, commercial and industrial energy consumption is forecast to account for 29.5% of the County’s GHG 2030 inventory. In 2030, GHG emissions from agriculture, off-road sources, stationary sources and waste account for comparable percentages of the County total as in 2006. Although Executive Order S-03-05 articulates GHG reduction targets out to 2050, the state has not adopted a specific reduction target for 2030. Therefore, projected 2030 emissions for Butte County were not assessed for conformity with the state’s GHG reduction goals. Sources that were not included in this inventory and forecast due to analytical constraints include: embodied emissions associated with water usage; emissions due to rice cultivation and agricultural practices; emissions associated with the conversion of forested, grass or agricultural lands to urban uses; and embodied emissions of materials.

**Methodology**

GHG emissions are quantified in terms of CO2 equivalents. Each GHG has a different Global Warming Potential (GWP) that represents its infrared absorption strength relative to a reference gas. CO2 is used as the standard for GHG emissions because it is most abundant in the atmosphere and has the lowest GWP. It is assigned a GWP of 1. Emissions of GHGs quantified in this inventory are reported in metric tons of CO2e based on the GWP of the gas, as reported in the IPCC Second Assessment Report (SAR) (2001). Although GWPs reported in the most recent IPCC assessment, the Fourth Assessment Report (2007), differ slightly from those in the SAR, the SAR GWPs are recommended for use in inventories to be consistent with state and national inventories, regardless of the inventory year. The EPA recommends using the older values despite more recent scientific data so that all inventories will be calculated on the same scale. The unincorporated Butte County GHG inventory includes GHG emissions from direct and indirect sources. A direct emission source is defined as an on-site source of emissions such as the combustion of fossil fuel in a vehicle engine. An indirect emission source is defined as an emissions source generated off site as a result of County operation, such as electricity consumption.

**Transportation (On-road vehicles)** - The EMFAC model\(^8\) was used to estimate the 2006, 2020 and 2030 Butte County vehicle fleet mix by vehicle class and vehicle fuel type. The County-wide distribution of VMT by vehicle type was assumed to be representative of the vehicle distribution in the unincorporated portion of Butte County. The EMFAC was also used to generate fuel economy (mpg gasoline and mpg diesel) in the inventory and forecast years for vehicles in 5 mile speed bins that matched the designation

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F-7
of traffic data as supplied by the traffic engineers. EMFAC model runs require inputs of local ambient temperature and relative humidity as engine performance and thus emission factors depend on environmental conditions. Yearly temperatures for four Butte County weather stations' were averaged to yield a value of 60°F. A value of 53% annually average RH was obtained from two Butte County monitoring stations.

Daily VMT in 5 mile speed bins was supplied by the traffic engineers for the inventory and forecast years. This data does not disaggregate pass-through trips in the County. Daily VMT was multiplied by 365.25 days per year to obtain annual VMT by speed. Annual VMT in each speed bin was apportioned to vehicle type using the Butte County fleet mix. VMT of each vehicle type and speed was then divided by the appropriate fuel economy to give fuel consumption as a function of speed, vehicle type and fuel type. Gallons of gasoline and diesel fuel were summed for the inventory and forecast years and multiplied by carbon dioxide emissions factors (kg CO2/gallon fuel) provided by the California Climate Action Registry General Reporting Protocol.

The Environmental Protection Agency provides emission factors for CH4 and N2O (g/mile) for on road vehicles according to vehicle class and fuel type. VMT by fuel and class were summed and multiplied by the appropriate emission factor to yield grams CH4 or grams of N2O per year. Yearly emissions of CH4 and N2O were converted to metric tons of CO2e using the respective global warming potentials of each gas as provided by the SAR IPCC report.

The State of California has set forth a three-pronged approach to reducing emissions from on-road vehicles which includes: 1) increasing the fuel economy of cars, 2) decreasing the carbon content of fuels, and 3) decreasing overall VMT. The State has adopted AB1493 (see Section A.2.b of EIR Chapter 4.15, Pavley II), which sets standards for fuel economy for passenger cars and light trucks through 2016. The passage of an addendum to this program, Pavley II, which will strengthen these standards even

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14 GWPs from the IPCC Second Assessment Report (SAR) are used as recommended by EPA and UNFCCC inventory protocols. Although more recent scientific research has provided updates to these values, utilizing the older values allows all inventories and reductions to be assessed on the same scale. The California GHG Inventory was performed using the SAR values and thus the Butte County Inventory is consistent with state accounting protocols.
more beginning in 2017 is highly anticipated. The Air Resources Board recently adopted a low carbon fuel standard (LCFS) and is in the process of implementing a program for this standard. The AB 32 Scoping Plan provides estimates of the expected reduction from these measures and these percentage reductions were applied the 2020 and 2030 forecasted emissions.

**Transportation (off-road equipment and vehicles)** - The OFFROAD\(^{15}\) model was used to estimate emissions of CO\(_2\), CH\(_4\) and N\(_2\)O from off-road equipment and vehicle exhaust for the inventory and forecast years, including: recreational equipment, lawn and garden equipment, construction and mining equipment, light commercial equipment, industrial equipment, airport ground equipment, equipment associated with rail yards and oil drilling, and pleasure crafts. County-wide emissions from the OFFROAD model were scaled to the unincorporated portion of the County using 2009 population distribution. The OFFROAD model provides direct emissions of CH\(_4\) and N\(_2\)O (tons/year) for each class of equipment. Emissions of CH\(_4\) and N\(_2\)O were converted to CO\(_2\) equivalents using the global warming potential of each gas as provided by IPCC SAR.\(^{16}\) CO\(_2\) emissions were estimated based on annual diesel, gasoline and natural gas fuel usage as provided by the OFFROAD model and converted to CO\(_2\) (kg CO\(_2\) / gallon fuel) using emission factors from the California Climate Action Registry General Reporting Protocol.\(^{17}\)

**Natural Gas and Electricity (Residential, Commercial and Industrial Energy Use)** – Pacific Gas and Electric provides electricity and natural gas to all of unincorporated Butte County. Annual consumption (KWH and therms) were provided by PG&E for residential, commercial and industrial sectors in the unincorporated County. PG&E also provides calculations of the associated CO\(_2\) emissions for an individual year’s electricity and natural gas usage. These estimates are based on the CCAR verified emissions factors and were used directly in this analysis. The CCAR is a nonprofit organization that cooperates with the CARB to facilitate voluntary reporting and certification of GHG emissions. For non-CO\(_2\) GHGs, emission factors derived from national averages (EPA, 2005) were used. Electricity and natural gas for 2020 and 2030 were estimated based on population and the current per capita usage. 2006 emission factors for natural gas and electricity were applied to the 2020 and 2030 forecasts. Because the production and delivery of electricity in California vary from year to year based on a variety of factors including peak demand and precipitation, the GHG emission factors change significantly from year to year. Thus, the amount of GHGs emitted per KWH delivered may be more or less in a given year and the forecast assumes that GHGs emitted per KWH or therms remain constant in future decades. The Renewables Portfolio Standard sets forth a goal to increase the procurement of renewable energy sources by California power companies to 33% of their annual sales by 2020. The associated reductions


expected from full realization of the RPS (AB32 Scoping Plan) are accounted for in the 2020 and 2030 forecasts. It was assumed that the percent of renewable power remained at 33% through 2030 and that PG&E was able to meet that goal by 2020.

**Stationary Sources** - GHG emissions from stationary sources within the County largely result from the burning of fossil fuels to power equipment at industrial facilities. Permitted sources report annual fuel consumption and fuel type to the Butte County Air Quality Management District (BCAQMD). This data was provided by the BCAQMD for permitted stationary sources emitting more than 0.01 tons/day of criteria air pollutants or greater. Data was provided for the inventory year 2006 or closest year available. This method captures the largest emitters and allowed the BCAQMD to compile and provide data in a timely fashion. Natural gas and electricity from these sources was not included in this estimate as it has already been accounted for in our estimate for direct and indirect energy usage above. Gasoline and diesel fuel usage for vehicles associated with the source was also excluded since these emissions are counted in either the on-road or off-road component of the model. Consumed fuel by type was summed and converted to metric tons of CO2e using the appropriate emission factors for each GHG (CCAR).

Butte County currently has 1400 acres devoted to industrial use. The General Plan 2030 and Zoning Ordinance designate 1895 acres for industrial use. 2006 GHG emissions due to industrial sources were scaled based on this ratio for 2020 and 2030 emissions.

**Waste** - GHG emissions due to waste in Butte County were estimated from two sources: 1) CH4 emissions from waste in place at the Neal Road Recycling and Waste Facility in the inventory year and projected waste in place for 2020 and 2030 (waste in place) and 2) potential GHG emissions over the lifetime of the waste generated in the inventory year, 2020 and 2030 (future waste commitment). Waste in place emissions are direct emissions from a specific landfill regardless of where the waste originated. The Neal Road Recycling and Waste Facility accepts waste from both unincorporated Butte County and other jurisdictions. Because the emissions occur within the jurisdictional boundaries of the County and the facility owns and operates the facility, these emissions are accounted for in the Butte County GHG inventory (ICLEI, 2008). Future waste commitment emissions are indirect emissions associated with waste generated within the jurisdiction of Butte County, regardless of where that waste is disposed. Waste collected by the Butte County Regional Waste Management Authority is produced by Butte County businesses and residents but may be deposited at solid waste disposal facilities outside of Butte County’s jurisdiction.

GHG emission estimates based on population (future waste commitment of the community’s single year waste) are reported for informational purposes only, but are not included in the inventory. Including both the waste in place emissions and a single year snapshot of a population’s emissions would be ‘double counting’ for the inventory year 2008 Landfill emissions may not offer much mitigation potential, particularly for landfills with landfill gas to energy (LFGTE) systems already in place, as is the case at the Neal Road Facility. Indirect, population-based emissions however, may provide opportunities

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18 Lusk, David pers. Comm. Senior Air Quality Engineer, Butte County Air Quality Management District, Butte, CA. September 29, 2009—data received on CD by Margaret Williams, ICF Jones & Stokes.
for cost-effective mitigation options aimed at reducing the waste generated in residences and businesses. Specific methodologies for GHG estimates from both sources are described in the following paragraphs.

Waste (landfills, waste in place) - Specific site information about the Neal Road Facility was collected through the California Integrated Waste Management Board\(^{19}\) web site and through consultation with Bill Mannel with the Butte County Public Works Department.\(^{20}\) Butte County owns and operates the Neal Road Recycling and Waste Facility. Opened in 1965 and scheduled to close in 2033, this facility contains two depositional sites. The first, closed in 2004, has a gas flaring system installed. The second, opened in 2005, is scheduled to have a gas to energy system operating by 2011. According to the CIWMB, the Neal Road Facility contained 3,555,429 cubic yards of waste in 2000. Assuming that annual waste deposition for 2006-2008 (tons) was representative of the period 2000-2008, the facility was estimated to contain 2,546,010 tons of waste in 2008. Methane emissions from waste in place were calculated using the IPCC FOD\(^{21}\) method with historical California waste stream data applied.\(^{22}\) This method treats the landfill as a stationary source emitting for the current inventory year, although the emissions are due to waste placed in the landfill over many years. It was assumed that current and future gas capture systems have an efficiency of 75%.\(^{23}\) For the 2020 and 2030 scenarios, total tons of waste in place was estimated based on 2008 per capita waste generation and population growth rates as provided in the General Plan and by the State Department of Finance. The FOD model assumes a percentage of the waste is biodegradable (ANDOC) and this percentage changes as the waste stream profile changes over time. 2009 ANDOC percentage were assumed for all future years.

Waste (Single-year, future waste commitment) – Community waste generation information (tons solid waste/year) for 2008 was obtained through CIWMB. 2006 data was not available. The methane generation potential of a single year’s waste, or the future waste commitment, was estimated using the following: the single year waste (tons) generated in Butte County the breakdown of waste types (waste stream profile, emissions factors based on the EPA’s WARM model\(^{24,25}\) The CIWMB conducted a comprehensive study in 2004 of waste and waste operations


in the state of California. Table F-3 shows the waste stream profile used in this analysis for residential and commercial waste in Butte County.

Table F-3: California Residential Waste Stream (2004)

<table>
<thead>
<tr>
<th>Waste type</th>
<th>Percent of Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper Products</td>
<td>31%</td>
</tr>
<tr>
<td>Food Waste</td>
<td>25%</td>
</tr>
<tr>
<td>Plant Debris</td>
<td>9%</td>
</tr>
<tr>
<td>Wood/Textiles</td>
<td>8%</td>
</tr>
<tr>
<td>All Other</td>
<td>27%</td>
</tr>
</tbody>
</table>

This method estimates the methane generation potential of a single year’s solid waste generation, regardless of the solid waste disposal facility where it is deposited. This method is included for informational purposes only and is not included in the inventory total, but provides more detail about the sources and patterns of waste within a jurisdiction. For the 2020 and 2030 scenarios, projected 2030 population buildout of the General Plan 2030 and Zoning Ordinance was used. 2008 per capita waste generation rates and current waste profiles were applied. It was assumed that all waste in current and future years was buried in facilities with methane flaring or gas to energy systems installed and that these systems have 75% methane destruction efficiency. Many systems currently achieve greater efficiencies. Specific destruction efficiency data at facilities receiving Butte County waste was not available and potential future improvements to these systems were not accounted for.

Agricultural—GHG emissions from agriculture are related to fuel use for equipment and vehicles, fertilizer use, methane emissions from livestock, rice cultivation, agricultural practices and embodied emissions associated with water usage. GHG emissions from agricultural equipment and vehicles were estimated using the OFFROAD model and were not scaled based on population differences between the incorporated and unincorporated areas. It was assumed that the bulk of agricultural lands are in the unincorporated portion and relatively few acres are in the more densely populated incorporated municipalities. This method likely results in a slight overestimate of emissions from agricultural equipment and vehicles. Only emissions from vehicles and equipment for agriculture were quantified in this inventory.

Quantitative estimates of emissions associated with rice cultivation, fertilizer usage, livestock and other agriculture practices were not included in this inventory due to analytical limitations. Quantitative estimates of emissions from fertilizer, livestock, rice cultivation and water usage must be based on detailed information regarding fertilizer type and usage, as well as day to day practices that vary substantially from farm to farm depending on size, location and primary crops or livestock. These emissions are not included in the inventory presented here but should be considered in future

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inventories as methodology for assessing these emissions improves and site specific agricultural data availability increases.

**Other Sources Not Quantified** - GHG emissions occur from other sources in Butte County in addition to those quantified in Tables F-1 and F-2 above. Additional sources of GHG emissions include: emissions associated with land use change, embodied emissions associated with water usage, embodied emissions associated with materials, rice cultivation and agricultural practices. The latter two were discussed previously in a qualitative sense in the Agriculture sub-section above. Emissions associated with land-use change result when land changes from timber, grass or other agricultural uses to a more urban use and the amount of stored carbon in biomass is diminished. The opposite is true for transformation of urban lands to natural lands. Currently, analytical methods to estimate the GHG emissions associated with this source at the project or County level are developing. The amount of carbon stored as biomass depends on numerous factors, including plant species, age of vegetation, water availability, nutrient availability and climate/weather conditions. Quantification for emissions associated with land use change in Butte County would require detailed land use maps and species inventories. The resulting estimate of carbon stocks or sequestration rates would be somewhat speculative, as it would be based on average growth and sequestration rates obtained from the literature - not data specific to Butte County. The CCAR Forestry Protocol for assessing carbon stocks for voluntary carbon credits requires site-specific measurements which were beyond the scope of this GHG inventory effort. Nevertheless, this source should be considered in future efforts as data availability improves and inventory protocols become formalized.