CITY OF ORLAND

GENERAL PLAN UPDATE

DRAFT ENVIRONMENTAL IMPACT REPORT

SCH NO. 2008102073

Prepared for:

CITY OF ORLAND
815 FOURTH STREET
ORLAND, CA 95963

Prepared by:

PMC®

140 INDEPENDENCE CIRCLE, SUITE C
CHICO, CA 95973

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1.0 Introduction

This section summarizes the purpose of the Draft Environmental Impact Report (Draft EIR or DEIR) and describes the environmental procedures that are to be followed according to state law, the intended uses of the DEIR, the DEIR's scope and organization, contact person, impact terminology, and definitions of commonly used terms.

1.1 GENERAL PLAN AND GENERAL PLAN EIR BACKGROUND

Under California Government Code Section 65300 et seq., all cities and counties within the State of California are required to prepare a general plan. The general plan provides basic goals, policies, and programs to guide land development in the planning area of the jurisdiction, as well as a land use diagram designating future land uses. The City of Orland last updated its General Plan in 2002, with adoption in 2003. Changes that have occurred in the City since that time, plus proposed commercial and residential development both within and outside of the city limits, have prompted the City to pursue an update of its General Plan. Since the General Plan guides land development, it has potentially significant impacts on the environment. Therefore, a Draft EIR has been prepared for the updated Orland General Plan (proposed General Plan or Project).

California Environmental Quality Act (CEQA) Guidelines Section 15050(a) states one public agency shall be responsible for preparation of an environmental impact report (EIR) for a project to be carried out or approved by more than one public agency. The public agency responsible for the EIR is designated the lead agency. The City of Orland is the lead agency for the environmental review required by CEQA. The other agencies with approving authority are designated under CEQA as responsible agencies. The decision-making body of each responsible agency shall consider the lead agency's DEIR prior to acting upon or approving the project [CEQA Guidelines Section 15050(b)]. For this project, the responsible agencies include:

- County of Glenn
- County of Glenn Local Agency Formation Commission (LAFCo)
- Glenn County Airport Land Use Commission
- Orland Unified School District
- State Water Resources Control Board (SWRCB)
- Regional Water Quality Control Board (RWQCB), Central Valley Region
- Glenn County Air Pollution Control District (GCAPCD)
- California Department of Transportation (Caltrans), District 3
- California Department of Fish and Game
- California Department of Water Resources
- State Reclamation Board
- U.S. Army Corps of Engineers

The California Department of Fish and Game is also a trustee agency, as defined in CEQA Guidelines Section 15386. A trustee agency is a state agency having jurisdiction by law over natural resources held in trust for the people of California that may be affected by a project. Resources that could be affected by the project include fish, wildlife, and rare and endangered plants.

The City of Orland, acting as the lead agency, has prepared this Draft EIR to provide the public and responsible and trustee agencies with information about the potential environmental effects of the proposed General Plan. As described in CEQA Guidelines Section 15121(a), an EIR is a public information document that assesses potential environmental effects of the proposed General Plan and identifies mitigation measures and alternatives to the proposed General Plan that could reduce or avoid adverse environmental impacts. Public agencies are charged with

the duty to consider and minimize environmental impacts of proposed development where feasible, and have an obligation to balance a variety of public objectives, including economic, environmental, and social factors when considering a project.

BASELINE ENVIRONMENTAL CONDITIONS AND POPULATION PROJECTIONS

Section 15125(a) of the California Environmental Quality Act (CEQA) Guidelines requires that a DEIR include a description of the physical environmental conditions in the vicinity of a project, as they exist at the time the Notice of Preparation (NOP) is published. The CEQA Guidelines also specify that this description of the physical environmental conditions should serve as the baseline physical conditions by which a lead agency determines whether the impacts of a project are considered significant.

The environmental setting conditions of the City of Orland are described in detail in the individual technical sections of the Draft EIR (see Sections 4.1 through 4.13). In general, these sections describe the setting conditions of the City as they existed when the NOP for the project was released on October 21, 2008. The Department of Finance estimated 2008 population of 7,353 is used in as the baseline for the projections over the proposed General Plan 20-year period. In addition, the Draft EIR also includes information about the environmental setting that has been updated since the release of the NOP, such as the status of large-scale development projects within the General Plan Planning Area.

1.2 LEGAL BASIS

CEQA requires the preparation of an environmental impact report prior to approving any "project" which may have a significant effect on the environment. For the purposes of CEQA Section 15378 of the Guidelines, a project is defined as follows:

> a) "Project" means the whole of an action which has a potential for resulting in physical change in the environment, directly or ultimately, and that is any of the following:
>
> (1) An activity directly undertaken by any public agency including but not limited to public works construction and related activities, clearing or grading of land, improvements to existing public structures, *enactment and amendment of zoning ordinances*, and *the adoption and amendment of local General Plans or elements thereof pursuant to Government Code Sections 65100-65700.* (Emphasis added.)
>
> (2) An activity undertaken by a person which is supported in whole or in part through public agency contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.
>
> (3) An activity involving the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies.

The updating and implementation of the General Plan is a project within the definition of CEQA, which has the potential for resulting in significant environmental effects.

1.3 TYPE OF DOCUMENT

This project has been prepared as a Program EIR pursuant to CEQA Guidelines Section 15168, which describes a Program EIR as:

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

The "series of actions" in this case will be the future updating of the Zoning Ordinance and other local codes and regulations, and the development projects, both public and private, which will subsequently occur to implement the City's General Plan.

1.4 INTENDED USES OF THE EIR

This DEIR has been prepared in accordance with the California Environmental Quality Act, consistent with the most current update to the CEQA Guidelines. The DEIR is intended to evaluate the environmental consequences of implementing the proposed General Plan. This EIR, in accordance with CEQA Guidelines Section 15126, should be used as the primary environmental document to evaluate all subsequent planning and permitting actions associated with the implementation of the proposed General Plan, including, but not limited to, the following:

- Future updates of the Zoning Ordinance
- Development of Public Facility Master Plans
- Evaluation of Capital Improvement Plans
- Significant private development plans
- Specific plans
- Street and highway improvement plans
- School and park development
- Historic preservation plans
- Central Business District development

This DEIR may also be used to support development consistent with the General Plan. In some instances, the DEIR may be the only environmental documentation necessary. In other instances the DEIR may provide support for more site-specific environmental review.

1.5 ORGANIZATION AND SCOPE

Sections 15122 through 15132 of the CEQA Guidelines identify the content requirements for Draft and Final EIRs. A DEIR must include a description of the environmental setting, an environmental impact analysis, mitigation measures, alternatives, significant irreversible environmental changes, and growth-inducing cumulative impacts. The environmental issues addressed in the Draft EIR were established through review of environmental documentation developed for the Project, environmental documentation for nearby projects, public agency responses to the Notice of

Preparation, and comments received throughout the history of the Project. Based upon these comments and agency consultation, the City determined the scope for this DEIR.

This Draft EIR is organized in the following manner:

SECTION 1.0 – INTRODUCTION

Section 1.0 provides an introduction and overview describing the intended use of the Program EIR and the review and certification process.

SECTION 2.0 – EXECUTIVE SUMMARY

This section summarizes the characteristics of the proposed General Plan, alternatives, and public scoping comments.

SECTION 3.0 – PROJECT DESCRIPTION

This section provides a detailed description of the proposed project, including intended objectives, background information, and physical and technical characteristics of the proposal.

SECTION 4.0 – ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

Section 4.0 contains an analysis of environmental topic areas as identified below. Each subsection contains a description of the existing setting of the General Plan Planning Area, identifies project-related impacts, and identifies feasible mitigation measures where warranted.

The following major environmental topics shall be addressed in this section:

- ***Aesthetics:*** This section assesses the potential the proposed General Plan will have on scenic qualities and vistas that exist within the community and the potential impact the Project may have on those scenic vistas that provide a backdrop around the community.

- ***Agricultural Resources:*** Reviews the extent of agricultural use in the Planning Area and the impact the Project may have on agricultural uses.

- ***Air Quality:*** Discusses the local and regional air quality impacts associated with Project implementation.

- ***Biological Resources:*** The Project's impacts on habitat, vegetation, and wildlife are addressed, while emphasizing the potential degradation or elimination of important habitat and the impacts upon listed, proposed, and candidate threatened and endangered species.

- ***Cultural Resources:*** Addresses the potential impacts on historic and archaeological resources within the General Plan Planning Area.

- ***Geology and Soils/Hazards:*** Addresses the potential impacts the Project may have regarding geotechnical concerns including soils, soil suitability for development, and seismic hazards. Discusses the transport of hazardous materials within the Planning Area and the treatment of hazardous materials when existing in known locations or when a project uses hazardous materials.

- ***Hydrology and Water Quality:*** Examines the impacts of the Project on local hydrological conditions such as drainage areas, impacts of erosion, and flood hazards.

- ***Land Use and Planning:*** Addresses the potential land use impacts associated with implementation of the Project including compatibility with existing land uses, development trends, and conflict with other agency plans.

- ***Noise:*** Examines ambient noise levels in various areas of the City, major noise sources, and potential impacts from increases in development.

- ***Population and Housing:*** Reviews population projections and related housing needs to satisfy the projections, including land needs and housing displacement that could occur.

- ***Community Services:*** Discusses the impacts the proposed General Plan will have on the need for fire protection, law enforcement, library services, education, and parklands.

- ***Utilities and Service Systems:*** A discussion of the status and capacities of existing water supply, wastewater, and solid waste systems and the needs of these systems as population increases.

- ***Transportation and Circulation:*** Addresses the impacts on the local and regional road system, specifically on those roadways that may be impacted as a result of growth and related traffic increases.

SECTION 5.0 – CUMULATIVE IMPACTS

This section summarizes the cumulative impacts associated with the proposed Project using the same environmental issue areas as Section 4.0. Cumulative impacts are the result of combining the potential effects of the Project (i.e., the General Plan Update) with other planned and foreseeable development projects.

SECTION 6.0 – ALTERNATIVES TO THE PROJECT

The California Environmental Quality Act (CEQA Guidelines) requires that a DEIR consider alternatives to a project (Section 15126[a]). According to the CEQA Guidelines, the reasonable range of alternatives "shall include those that could feasibly accomplish most of the basic purposes of the project and could avoid or substantially lessen one or more of the significant impacts" (Section 15126[d][2]).

- **No Project Alternative:** CEQA requires that the DEIR for a project consider a "No Project" alternative. The No Project alternative assumes that the proposed General Plan will not be adopted by the City and that only those land uses designated within the current General Plan will be implemented.

- **Secondary Sphere of Influence Alternative**: The General Plan Planning Area would be reduced to be more consistent with the current Secondary Sphere of Influence boundary. This change would move the southern Planning Area boundary to Road 20. The northern, eastern, and western boundaries would remain the same as the proposed Project. This alternative would also include the area surrounding the Glenn County Airport similar to the proposed Project.

- **County General Plan Alternative:** Glenn County is currently in the process of updating its General Plan. This alternative will reflect land uses identified by Glenn County for the area surrounding the City of Orland. The use of this alternative is dependent on the availability of land use information for the Glenn County General Plan Update.

SECTION 7.0 – OTHER EVALUATIONS REQUIRED BY CEQA

This section contains required discussions and analysis of various topical issues mandated by CEQA, including cumulative effects, environmental effects that cannot be avoided if the Project is implemented, growth-inducing impacts, climate change, and irreversible environmental changes and irretrievable commitment of resources.

SECTION 8.0 – REPORT PREPARERS AND PERSONS CONSULTED

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

SECTION 9.0 – APPENDICES

This section includes all notices and other procedural documents pertinent to the DEIR, as well as all technical reports prepared to support the analysis.

1.6 ENVIRONMENTAL REVIEW PROCESS

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

NOTICE OF PREPARATION AND INITIAL STUDY

The City of Orland was identified as the lead agency for the proposed Project. In accordance with Section 15082 of the CEQA Guidelines, the City of Orland prepared a Notice of Preparation (NOP) of a DEIR on October 21, 2008. The Office of Planning and Research assigned this NOP State Clearinghouse #2008102073. The public comment period commenced on October 22, 2008, and ended on November 21, 2008. A notice was circulated to the public, local, state, federal agencies, and other interested parties to solicit comments on the proposed Project. Six agencies provided comments (see **Appendix A**). A public scoping meeting on the Notice of Preparation and Draft General Plan Update was conducted on November 17, 2007, in the City.

DRAFT EIR

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

PUBLIC NOTICE/PUBLIC REVIEW

Concurrent with the Notice of Completion, the City will provide public notice of the availability of the DEIR for public review and invite comment from the general public, agencies, organizations, and other interested parties. All entities should provide the City of Orland with any

specific group or organization to receive the Draft EIR for public review. The public review and comment period will be forty-five (45) days. Public comment on the DEIR will be accepted both in written form and orally at public hearings. Although no public hearings on the DEIR are required by CEQA, the City expects to sponsor a public review meeting during the 45-day review period. Notice of the time and location of the hearing will be published as a Notice of Availability. All comments or questions regarding the DEIR should be addressed to:

Nancy Sailsbery, Director of Community Development
City of Orland
815 4th Street
Orland, CA 95963
Phone: (530) 865-1600

RESPONSE TO COMMENTS/FINAL EIR

Following the public review period, a Final EIR (FEIR) will be prepared. The FEIR will respond to written comments received during the public review period and to oral comments made at any public hearing. The City Council will review and consider the FEIR prior to their decision to approve or conditionally approve the Project.

CERTIFICATION OF THE EIR

If the City finds that the FEIR is "adequate and complete," the City may certify the FEIR. The rule of adequacy generally holds that the EIR can be certified if it: (1) shows a good faith effort at full disclosure of environmental information, and (2) provides sufficient analysis to allow decisions to be made regarding the project in contemplation of environmental considerations.

Project Consideration

Upon review and consideration of the FEIR, the City may consider action on the Project. A decision to adopt the proposed General Plan would be accompanied by written findings in accordance with CEQA Guidelines Section 15091 and, if applicable, Section 15093.

MITIGATION MONITORING

CEQA Section 21081.6(a) requires lead agencies to adopt a mitigation monitoring and reporting program to describe measures that have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The City will work with public agencies for specific impacts.

1.7 COMMENTS RECEIVED ON THE NOTICE OF PREPARATION

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

- Pacific Gas and Electric (PG&E)
- State of California Governor's Office of Planning and Research
- Native American Heritage Commission
- State of California Public Utilities Commission

- State of California Governor's Office of Emergency Services
- State of California Department of Transportation (Caltrans), District 3

The following summarizes the concerns in these letters:

- The DEIR should address potential impacts to utility facilities resulting from development under the General Plan and the need to coordinate with PG&E early in the development process.

- The DEIR should provide a discussion about electric and magnetic fields as it is an issue of public concern.

- The DEIR should provide provisions within it to regarding the mitigation of project-level impacts to historic and archeological resources such as coordination with appropriate archaeological information centers.

- The DEIR should address the potential project-related rail safety impacts resulting from the proposed General Plan as well as mitigation measures to reduce adverse impacts.

- The major types of impacts that the DEIR should consider are collisions between trains and vehicles and collisions between trains and pedestrians.

- The DEIR should consider the limitation of housing adjacent to existing rail yards as well as new development adjacent to at-grade highway rail crossings.

- The DEIR should examine the section of state planning law that involves potential hazards Orland may face.

- The DEIR should provide a list of specific hazard issues and a description as to how these issues are going to be addressed.

- It is important that the DEIR address all potential significant impacts to the State Highway System (State Route 32 and Interstate 5) as a result of the General Plan Update, and such impacts should be identified through the employment of a Traffic Impact Study to be completed as part of the DEIR.

- It is recommended that the Traffic Impact Study completed for the DEIR consider impacts to ramps, ramp intersections, and mainline segments and be based on the "Guide for the Preparation of Traffic Impact Studies."

- The DEIR should contain provisions for a Traffic Impact Mitigation Fee program in order to establish a mechanism to assess and collect impact fees from future development.

2.0 Executive Summary

This section provides an overview of the proposed project and the associated environmental analysis. It has been prepared pursuant to the requirements set forth in CEQA Guidelines Section 15123, which describes the content requirements for the summary section of an EIR. For additional detail regarding specific issues, please consult the appropriate section in Sections 4.1 through 7.0.

2.1 PURPOSE AND SCOPE OF THE EIR

This Draft EIR will provide, to the greatest extent possible, an analysis of the potential environmental effects associated with the implementation of the proposed City of Orland General Plan, pursuant to the California Environmental Quality Act (CEQA). The Draft EIR will be used to evaluate the direct and indirect environmental effects of subsequent overall development under the proposed General Plan. Through the proposed General Plan process, land use changes are proposed within the City of Orland. Update of the Zoning Ordinance brings it into conformance with the adopted General Plan and state planning laws.

2.2 PROJECT CHARACTERISTICS

California Government Code Section 65300 requires each city and county to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning." The proposed City of Orland General Plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, both public and private. The policies of the general plan are intended to underlie most land use decisions. Pursuant to State law, subdivisions, capital improvements, development agreements and many other land use actions must be consistent with the adopted general plan. In counties and general law cities, such as the City of Orland, zoning and specific plans are also required to conform to the general plan.

Section 3.0, Project Description, contains a detailed description of the proposed City of Orland General Plan. The proposed General Plan would cover a proposed Planning Area that includes the existing City limits and Sphere of Influence, as well as lands proposed for inclusion in the Sphere of Influence. The proposed Planning Area consists of approximately 6.42 square miles. The comprehensive update proposes revisions to the following elements:

- Land Use
- Circulation
- Safety
- Open Space, Conservation, and Public Facilities
- Noise
- Housing

The proposed General Plan includes a Land Use Diagram that assigns land use designations to all lands within the proposed Planning Area (see **Figure 3-3**). These designations will provide guidance for future development decisions by the City. In a few cases, designations in the proposed Land Use Diagram would differ from those in the current 2003 General Plan. One of the proposed designations would be new: Mixed Use. All other designations in the current General Plan would remain the same in the proposed General Plan. The densities allowed under the High Density Residential designation would increase from 15 to 25 dwelling units per acre. The proposed General Plan contains goals and policies regarding land use within the proposed Planning Area, and programs designed to carry out these goals and policies.

2.3 AREAS OF CONTROVERSY

Pursuant to the CEQA Guidelines, the scope of this Draft EIR includes specific issues and concerns identified as potentially significant physical effects on the environment. The scope was determined by City staff and from comments received in response to the Notice of Preparation (NOP) for the Draft EIR. Based on these sources, this Draft EIR addresses the following topics in depth:

- **Visual Resources/Light and Glare** – loss or lack of trees in proposed Planning Area, obstruction of scenic vistas, and increased glare and night lighting.

- **Agricultural Resources** – conversion of farmland and conflicts between existing agricultural and future urban development.

- **Air Quality** – air pollutant emissions from construction activities, emissions from land use activities and associated traffic, impacts related to climate change.

- **Biological Resources** – impacts on special-status plant and animal species, wetlands and riparian habitat.

- **Cultural Resources** – previously unknown cultural or paleontological resources uncovered during construction, impacts on existing historic buildings and neighborhoods.

- **Geology, Seismicity, and Soils / Hazards** – expansive soil hazards, hazards related to earthquakes, soil erosion. The transport, use and storage of hazardous materials; hazardous material contamination sites; hazards associated with asbestos, lead and PCBs.

- **Hydrology and Water Quality** – contamination of surface waters and groundwater, flooding hazards, availability of groundwater during dry years.

- **Land Use** – potential conflicts with other land use plans and regulations.

- **Noise** – placement of noise-generating uses in vicinity of noise-sensitive uses, placement of noise-sensitive uses near existing noise sources, noise generated by construction activities, exposure of noise-sensitive uses to noise from airport operations.

- **Population and Housing** – impacts related to population growth and additional housing units.

- **Community Services** – increased demand for fire and police protection services, increased student population in schools, increased demand for library, park and recreation facilities.

- **Public Services and Utilities** – increased demand for water and sewer services, increased need for storm water drainage facilities, increased generation of solid waste, increased demand for electricity and other energy.

- **Transportation and Circulation** – decrease in levels of service on streets and intersections, including State highways; increased demand for transit services; increased need for bicycle and pedestrian facilities.

- **Climate Change** - increased greenhouse gas emissions and analysis of the effects of climate change.

Section 1.0, Introduction, provides a summary of comments regarding the proposed General Plan update during the NOP review period.

2.4 PROJECT ALTERNATIVES

CEQA Guidelines Section 15126.6 requires that a DEIR describe a range of reasonable alternatives to the project, which could feasibly attain the basic objectives of the project and avoid and/or lessen the environmental effects of the project. The alternatives analysis provides a comparative analysis between the project and the selected alternatives. This Draft EIR evaluates the following land use alternatives:

- **Alternative 1** – No Project Alternative. Under Alternative 1, the proposed City of Orland General Plan and its associated Land Use Diagram would not be adopted. The existing Orland General Plan policy document and Land Use Diagram would remain in effect. The City would utilize its existing zoning and other regulations regarding development within the City's jurisdiction. Infrastructure would be installed under existing plans, if applicable. Existing General Plan policies and programs would continue to be in effect.

- **Alternative 2** – Secondary Sphere of Influence Alternative. Under Alternative 2, the proposed General Plan Planning Area would be reduced to be more consistent with the Secondary Sphere of Influence boundary. This change would move the southern Planning Area boundary to Road 20, effectively removing approximately 500 acres of the Residential Estate designation from the Planning Area (a potential of 1,000 residential units and 3,000 people). These lands would maintain Glenn County land use designations and remain under County jurisdiction. The northern, eastern and western boundaries would remain the same as the proposed project. This Alternative would also include the area surrounding the Glenn County Airport similar to the proposed project.

- **Alternative 3** – County General Plan Alternative. Glenn County is currently in the process of updating its General Plan. This Alternative will reflect land uses identified by Glenn County for the area outside the City of Orland City limits yet within the City Planning Area. The use of this alternative is dependent on the availability of land use information for the Glenn County General Plan update.

Alternatives considered but not selected are discussed in Section 7.0, Project Alternatives. CEQA requires the selection of another environmentally superior alternative if a No Project alternative is considered environmentally superior. Based on an evaluation of potential environmental impacts, Alternative 2 was selected as the environmentally superior alternative.

2.5 OTHER SECTIONS REQUIRED BY CEQA

Public Resources Code Sections 21100(b)(2) and 21100.1(a) require that EIRs prepared for the adoption of plan, policy, or ordinance of a public agency must include a discussion of significant irreversible environmental changes of project implementation. Implementation of the proposed City of Orland General Plan would result in the conversion of undeveloped open space and agricultural lands to residential, commercial, industrial, office, public and recreational uses. It is unlikely that circumstances would arise that would return the developed land to its original undeveloped condition. Development of the City would irretrievably commit building materials and energy to the construction and maintenance of buildings and

infrastructure proposed. In addition, implementation of development under the proposed General Plan would result in an increased demand for energy, and would generate greenhouse gas emissions that contribute to climate change.

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) contain an assessment of the cumulative impacts that could be associated with the proposed project. According to CEQA Guidelines Section 15130(a), "an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable." Sections 4.1 through 4.13 and Section 5.0 describe potential cumulative impacts of the proposed General Plan. Significant cumulative impacts would occur as a result of agricultural land conversion, air pollutant emissions, noise impacts, population growth, and transportation and circulation.

CEQA Guidelines Section 15126.2(b) requires an EIR to discuss unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance. Sections 4.1 to 4.13 and Section 5.0 describe potential significant and unavoidable impacts of the proposed General Plan. Significant and unavoidable impacts would result from agricultural land conversion and loss of scenic agricultural lands, population and housing growth, increased air pollutant emissions, increased noise impacts, and increase demand on the transportation and circulation system.

CEQA Guidelines Section 15126.2(d) requires an EIR to discuss the growth-inducing impacts of a proposed project. Specifically, the EIR must discuss the ways in which the proposed project could foster economic or population growth or construction of additional housing, either directly or indirectly, on the surrounding environment. Section 7.0 provides a description of potential growth-inducing impacts. The proposed General Plan would indirectly induce growth through its designation of land uses, encouragement of population and job growth, and proposed infrastructure improvements.

Climate change has become an issue of concern in California. The State of California has initiated actions to reduce the state's contribution to greenhouse gas emissions. Under Executive Order S-3-05, California will reduce greenhouse gas emissions to year 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. Assembly Bill (AB) 32 requires ARB to adopt regulations that would reduce greenhouse gas emissions to 1990 levels by 2020. Implementation of the proposed General Plan would result in an increased population and substantial new development, which would generate greater emissions of greenhouse gases. The primary source of these greater emissions would be increased vehicle traffic, with industrial operations and power plants making substantial contributions. Section 5.0 discusses climate change issues in detail, and recommends measures to mitigate the impacts of proposed General Plan implementation on climate change.

SUMMARY OF ENVIRONMENTAL IMPACTS

Table 2.0-1 displays a summary of impacts for the proposed General Plan policies and programs, and proposed mitigation measures that would avoid or minimize potential impacts. In the table, the level of significance is indicated both before and after the implementation of each mitigation measure. For detailed discussions of all mitigation measures and of proposed General Plan policies and programs that would provide mitigation for each type of environmental impact addressed in this DEIR, refer to the appropriate environmental topic section of this DEIR (i.e., Sections 4.1 through 4.13).

TABLE 2.0-1
GENERAL PLAN UPDATE IMPACTS AND PROPOSED MITIGATION MEASURES

Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
4.1 Aesthetics					
Impact 4.1.1	Implementation of the proposed General Plan would result in the alteration of visual resources associated with the urban landscape within the proposed Planning Area. This is considered a potentially significant impact.	Policy 2.1.B, Program 2.1.B.1, Program 2.1.B.2, Policy 2.2.A, Program 2.2.A.1, Policy 2.3.A, Program 2.3.A.1, Program 2.3.A.2, Program 2.3.A.3, Policy 2.4.B, Program 2.4.B.1, Program 2.4.B.2, Policy 2.4.C, Program 2.4.C.1, Policy 2.4.D, Policy 2.5.B, Program 2.5.B.1, Program 2.5.B.2	**LS**	None Required	**LS**
Impact 4.1.2	Implementation of the proposed General Plan may result in changes in the visual character of the six identified Special Planning Districts. This is considered a less than significant impact.	Policy 2.4.D	**LS**	None Required	**LS**
Impact 4.1.3	Implementation of the proposed General Plan may result in the obstruction of scenic vistas at the existing edges of urban development. This is considered a less than significant impact.	Policy 2.1.A, Program 2.1.A.1, Program 2.1.A.4, Policy 2.4.D	**LS**	None Required	**LS**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
Impact 4.1.4	Implementation of the proposed General Plan could result in the introduction of a substantial amount of glare or lighting sources, which could impact daytime or nighttime views on adjacent areas and land uses. This is considered a less than significant impact.	Policy 2.3.A, Program 2.3.A.1, Program 2.3.A.2, Program 2.3.A.3, Policy 2.4.B, Program 2.4.B.1, Program 2.4.B.2	**LS**	None Required		**LS**
Impact 4.1.5	Implementation of the proposed General Plan will encourage new development activities that could degrade the existing visual character or quality of the City. This impact is less than cumulatively considerable.	General Plan Policies and Programs as listed under **Impacts 4.1.1** through **4.1.4** would reduce the proposed General Plan's contribution to this impact.	**LTCC**	None Required		**LTCC**
4.2 Agricultural Resources						
Impact 4.2.1	Implementation of the proposed General Plan would result in the loss of Prime Farmland and Farmland of Local Importance, as designated under the Farmland Mapping and Monitoring Program. This is considered a significant impact.	Goal 2.2, Policy 2.2.A, Program 2.2.A.1, Policy 2.2.B, Program 2.2.B.1, Program 2.2.B.2, Goal 5.1, Policy 5.1.A, Policy 5.1.B, Policy 5.1.F, Program 5.1.F.1, Policy 5.1.G, Policy 5.1.H, Policy 5.1.I	**S**	**MM 4.2.1**	The following mitigation measure shall be included as a program under General Plan Policy 5.1.I: • The City shall review development projects to mitigate for conversion of Prime Farmland and Farmland of Statewide Importance as defined on the	**SU**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			California Department of Conservation Important Farmland Map for Glenn County for parcels of 40 acres or larger in size as of the adoption date of this General Plan to urban uses: (1) granting a farmland conservation easement to or for the benefit of the City and/or a qualifying entity approved by the City, at a 1:1 ratio for each acre and quality developed, (2) if the City adopts a farmland conservation program, by payment of an in-lieu fee as established by the farmland conservation program, which shall be reviewed and adjusted	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			periodically to ensure that the fee is adequate to offset the cost of purchasing farmland conservation easements at a 1:1 ratio, or (3) other form of compensation at a 1:1 ratio, such as improvements to existing agricultural land, that is acceptable to the City and conserves the farmland in perpetuity. The City shall use minimum standard guidelines identifying requirements for conservation easements, including timing of conservation easements, location of land to be preserved, land mitigation ratio and quality, and minimum	

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
				standards for conservation easements.	
Impact 4.2.2	Implementation of the proposed General Plan could create conflicts between existing agricultural and future urban development within the proposed Planning Area and with land uses adjacent to the proposed Planning Area. This is considered a potentially significant impact.	Policy 5.1.C, Program 5.1.C.1, Program 5.1.C.2, Program 5.1.C.3, Program 5.1.C.4, Program 5.1.C.5, Program 5.1.C.6, Policy 5.1.D, Policy 5.1.E	**S**	None Available	**SU**
Impact 4.2.3	Implementation of the proposed General Plan could result in a conflict with existing Williamson Act contracts. This is considered a less than significant impact.	Policy 5.1.C, Program 5.1.C.1, Program 5.1.C.2, Program 5.1.C.3, Program 5.1.C.4, Program 5.1.C.5, Program 5.1.C.6, Policy 5.1.D, Policy 5.1.E	**LS**	None Required	**LS**
Impact 4.2.4	Implementation of the proposed General Plan, in addition to existing, proposed, approved, and reasonably foreseeable development in Glenn County, would contribute to cumulative land conflicts. This would be a cumulatively considerable impact.	General Plan Policies and Programs as listed under **Impacts 4.2.1** through **4.2.3** would reduce the proposed General Plan's contribution to this impact.	**CC**	Implementation of proposed General Plan policies, programs, and mitigation measure described under **Impact 4.2.1** through **Impact 4.2.3** would reduce the General Plan's contribution to cumulative impacts to agricultural resources.	**SU**

Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
4.3 Air Quality						
Impact 4.3.1	Subsequent land use activities associated with implementation of the proposed General Plan could result in emissions greater than the standards identified by the Northern Sacramento Valley Planning Area 2006 Air Quality Attainment Plan. This impact is considered to be less than significant.	Policy 5.4.B	**LS**	None Required		**LS**
Impact 4.3.2	Subsequent land use activities associated with implementation of the proposed General Plan may result in short-term emissions generated by construction and demolition activities that would affect local air quality and could result in health and nuisance-type impacts in the immediate vicinity of individual construction sites as well as contribute to particulate matter and regional ozone impacts. This is considered a significant impact to air quality.	Policy 5.4.B	**S**	**MM 4.3.2**	The following mitigation measure shall be added as a new program under Policy 5.4.B of the proposed General Plan: • The City shall require that individual development projects are analyzed as part of project review in accordance with Glenn County Air Pollution Control District-recommended methodologies and significance thresholds and shall require that all recommended	**SU**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			mitigation measures are incorporated to reduce short-term construction emissions attributable to individual development projects.	
Impact 4.3.3 Negative air quality impacts associated with long-term emissions from projected growth over the planning horizon of the proposed General Plan may result in violations of ambient air quality standards. This is considered a significant impact.	Policy 5.4.B, Policy 3.3.C, Program 3.3.C.1, Program 3.6.A.1, Policy 3.6.B, Program 3.6.B.1, Policy 3.6.C, Policy 3.7.A, Policy 3.7.B, Policy 3.7.D. Policy 3.8.A, Policy 3.8.B, Program 3.8.B.1, Policy 3.8.C	**S**	**MM 4.3.3a** The following mitigation measure shall be added as a new policy under Goal 5.4 of the proposed General Plan: • All new discretionary projects shall be evaluated to determine potential significant project-specific air quality impacts and shall be required to incorporate appropriate design, construction, and operational features to reduce emissions of criteria pollutants regulated by the state and federal	**SU**

Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			governments below the applicable significance standard(s) or implement alternate and equally effective mitigation strategies consistent with Glenn County Air Pollution Control District air quality improvement programs to reduce emissions. **MM 4.3.3b** The following mitigation measure shall be added as a new policy under Goal 5.4 of the proposed General Plan: • The City shall prohibit wood-burning open masonry fireplaces in all new development. Fireplaces with EPA-approved inserts, EPA-approved stoves, and fireplaces burning natural gas	

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
					will be allowed.	
Impact 4.3.4	Subsequent land use activities associated with implementation of the proposed General Plan may result in projects that would include sources of toxic air contaminants which may affect surrounding land uses and/or place sensitive land uses near existing sources of toxic air contaminants. This impact is considered significant.	Policy 5.4.B	**S**	**MM 4.3.4**	The following mitigation measure shall be added as a new Policy under Goal 5.4 of the proposed General Plan: • The City shall strive to minimize the exposure of sensitive uses, such as residences, schools, day care, group homes, or medical facilities to industrial uses, transportation facilities, or other sources of state-regulated air toxics through the planning review process.	**SU**
Impact 4.3.5	Subsequent land use activities associated with implementation of the proposed General Plan could include sources that would expose sensitive receptors to construction and long-term odorous emissions. This impact is considered less than significant.	Policy 5.4.A	**LS**	None Required		**LS**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.3.6	Implementation of the proposed General Plan along with potential development of the Planning Area would exacerbate existing regional problems with ozone and particulate matter. The proposed General Plan's contribution to these conditions is considered cumulatively considerable.	General Plan Policies and Programs as listed under **Impacts 4.3.1** through **4.3.5** would reduce the proposed General Plan's contribution to this impact.	**CC**	Implementation of the proposed General Plan policies, programs and mitigation measures identified under **Impact 4.3.1** through **Impact 4.3.5** would assist in reducing the proposed General Plan's contribution to cumulative regional and local air quality impacts.	**SU**
4.4 Biological Resources					
Impact 4.4.1	Land uses and development consistent with the proposed General Plan could result in the loss of populations or essential habitat for special-status plant and animal species. This would be considered a potentially significant impact.	Policy 5.3.A, Policy 5.3.B, Policy 5.3.C, Policy 5.3.D, Policy 5.6.A, Program 5.6.A.3, Policy 5.6.B, Program 5.6.B.1	**PS**	In addition to the policies contained in the Open Space, Conservation, and Public Facilities Element of the proposed General Plan, the following mitigation shall be implemented: **MM 4.4.1a** The following measure shall be implemented as a program under Policy 5.3.A of the proposed General Plan: • Continue to require environmental review of development applications pursuant to CEQA to assess the impact of proposed development on species and habitat diversity,	**LS**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			particularly special-status species, sensitive natural communities, wetlands, and habitat connectivity. Require adequate mitigation measures for ensuring the protection of sensitive resources. **MM 4.4.1b** The following measure shall be implemented as a program under Policy 5.3.A of the proposed General Plan: • Cooperate and work with all trustee agencies and agencies with review authority pursuant to CEQA to ensure that development within the City does not substantially affect areas identified to contain or possibly support special-status species.	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			Areas that may support special-status species include annual grassland communities, jurisdictional and isolated wetland features, agricultural communities that contain wetlands, riparian communities including oak woodlands, and drainages including rivers, streams, and creeks. **MM 4.4.1c** The following measure shall be implemented as a program under Policy 5.3.A of the proposed General Plan: • For landscape plans, the City shall prepare lists of appropriate native landscape species and inappropriate invasive exotic species for use by property owners in	

Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			developing landscape plans or enhancing existing landscaping, and include in the Design Guidelines. List shall be prepared with input from the California Department of Fish and Game, Agricultural Commissioner, University of California Cooperative Extension, California Native Plant Society, and other appropriate sources to verify suitability. **MM 4.4.1d** The following measure shall be implemented as a program under Policy 5.3.A of the proposed General Plan: • As part of the discretionary review of proposed development, prohibit the use of	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			highly invasive species in landscaping. Encourage use of native or compatible non-native plant species indigenous to the site vicinity as part of the discretionary review of project landscaping. Additionally, require that landscaping improvements for community parks, trails, and other public areas include the use of native plant materials or compatible non-native plant species that recognize and enhance the natural resource setting of the City.	
			MM 4.4.1e The following measure shall be implemented as a program under Policy 5.3.A of the proposed General Plan:	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			• The City shall seek to preserve wetlands, habitat corridors, sensitive natural communities, and other essential habitat areas that may be adversely affected by public or private development projects where special-status plant and animal species are known to be present or potentially occurring based on City biological resource mapping or other technical material. When identified development impacts to these habitats cannot be feasibly avoided, developers shall be responsible for mitigation. Such mitigation measures may include providing	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			and permanently maintaining similar quality and quantity of replacement habitat, enhancing existing habitat areas, or paying fees towards an approve habitat mitigation bank. Replacement habitat may occur either on-site or at approved off-site locations. **MM 4.4.1f** The following measure shall be implemented as a program under Policy 5.3.D of the proposed General Plan: • As part of the discretionary review process, a biological resources assessment may be required to consider the impacts of proposed development project on special-	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			status species and/or the habitats that support these species. If proposed development is located outside of ecologically sensitive areas, no site-specific assessment of biological resources may be necessary. • As part of the discretionary review process, biological resource assessments shall be required prior to the approval of a development within 300 feet of any river, stream, creek, wetland, or area identified to contain or possibly contain special-status plant and animal species, as determined by the City, City biological resource	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			mapping and data provided in the General Plan DEIR, or other technical material. The biological resources assessment shall determine the presence/absence of these special-status plant and animal species on the site. The surveys associated with the assessment shall be conducted during the appropriate seasons for proper identification of the species. The assessment will consider the potential for significant impacts on special-status plant and animal species and will identify feasible mitigation measures to mitigate such impacts to the	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			satisfaction of the City and appropriate governmental agencies (e.g., U.S. Fish and Wildlife Service and California Department of Fish and Game). These required mitigation measures of impacts will ensure that project does not contribute to the decline of the affected species such that their decline would impact the viability of the species. Mitigation measures on a project-by-project basis may include the following: • For special-status plant species: preservation of existing populations from direct and indirect impacts, and seed and soil collection	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			that ensures that the plant population is maintained. • For special-status animal species: avoidance of the species and its habitat as well as the potential provision of habitat buffers, avoidance of the species during nesting or breeding seasons, replacement or restoration of habitat on- or off-site, relocation of the species to another suitable habitat area presently uninhabited by the species, or payment of mitigation credit fees. • Participation in a habitat conservation plan. **MM 4.4.1g** The following measure	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			shall be implemented as a policy under Goal 5.3 of the proposed General Plan: • Protect sensitive biological resources and habitat corridors through environmental review of development applications in compliance with CEQA provisions, participation in comprehensive habitat management programs with other local and resource agencies, and continued acquisition and management of open space lands that provide for permanent protection of important natural habitats.	
Impact 4.4.2 Land uses and development consistent with the proposed	Policy 5.3.A, Policy 5.3.B, Policy 5.3.C, Policy 5.3.D,	**PS**	**MM 4.4.2a** The following measure shall be implemented as	**LS**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
General Plan could result in the loss of riparian habitat or other sensitive natural communities. This would be considered a potentially significant impact.	Policy 5.6.A, Program 5.6.A.3, Policy 5.6.B, Program 5.6.B.1		a program under Policy 5.3.A of the proposed General Plan: The City of Orland should encourage the retention of large or otherwise significant trees both in residential, non-residential, and open space areas by: • Encouraging or revising development plans to retain trees. • Revising development plans that would remove significant trees so that those trees are saved. • Minimizing development impact on trees with standards to minimize damage during construction and provisions to assure that building foundations, utilities, walkways, irriation, or use patterns will not	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			damage root structures or trunks. • In instances when the retention of large or otherwise significant trees (i.e., native oak trees) in residential, non-residential, and open space areas is infeasible and their removal is unavoidable, project developers shall be responsible for mitigation. All required tree mitigation shall conform to the following guidelines: • On-site mitigation through tree replacement is the preferred mitigation method. • The location and condition under which replacement trees are planted must be carefully selected to allow for practicable and feasible future development to minimize the	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			likelihood that future tree removal is not required, and to maximize the likelihood that the replacement trees will survive and thrive. • Provide appropriate replacement of lost large or otherwise significant trees (native oak trees) or preservation at a 2:1 ratio for habitat loss. • Transplanted trees, whether from on-site or off-site, may be accepted as replacement trees, but shall be given a discounted value, based on anticipated survival rates, as compared with nursery stock. The discounted value specified in the guidelines shall be reviewed from	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			time to time. • Any replacement tree, including a transplanted tree, which dies within five years of being planted must be replaced on a one to one basis. • Where mitigation formulas use percentages, results will always be rounded up to the next whole number percentage. **MM 4.4.2b** The following measure shall be implemented as a policy under Goal 5.3 of the proposed General Plan: • Maintain and expand the tree canopy through consideration of tree protection standards. The following measure shall be implemented as a program under the preceding policy:	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			• Encourage and cooperate with other responsible agencies to plan and implement an integrated management plan for the long-term conservation and restoration of riparian corridors within the City's Planning Area. **MM 4.4.2c** The following measure shall be implemented as a policy under Goal 5.3 of the proposed General Plan: • The City shall make every effort to protect remaining riparian vegetation along Stony Creek, Hambright Creek, and their tributaries within the Planning Area. To this end, projects with discretionary approval shall provide a minimum 100-foot	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			buffer from Stony Creek and Hambright Creek, and a 50-foot buffer from their primary tributaries. The buffer shall be measured outward from the top of each bank. Constructed canals and ditches are excluded from this buffer requirement. The City may provide for variances to these standards in existing developed areas and other areas where the provision of such buffers is not feasible. Development shall not occur within these buffers, except as part of greenway enhancement to include trails and bikeways. Impacts associated with these potential	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			variances and/or greenway enhancements shall be mitigated by developers. Such mitigation measures may include providing and permanently maintaining similar quality replacement habitat at a 1:1 ratio for habitat loss. **MM 4.4.2d** The following measure shall be implemented as a policy under Goal 5.3 of the proposed General Plan: • Design public access to avoid or minimize disturbance to sensitive resources, including necessary buffer areas, while facilitating public use, enjoyment, and appreciation of wetlands.	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			MM 4.4.2e The following measure shall be implemented as a policy under Goal 5.3 of the proposed General Plan: • Protect wetlands through careful environmental review of proposed development applications. Recognize the U.S. Army Corps of Engineers as the designated permitting agency that regulates wetlands. The following measure shall be implemented as a program under the preceding policy: • Require development proponents to submit detailed assessments of sites with wetlands pursuant to CEQA and to demonstrate compliance with state and federal	

Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			regulations. Assessments shall be conducted by a qualified professional to determine wetland boundaries and the presence of sensitive resources including endangered and special-status species and their habitat, to assess the potential impacts, and to identify measures for protecting the resource and surrounding buffer habitat. Assessments will delineate and map waters of the United States, including wetlands and open water habitats, and will make recommendations for avoidance. Wetlands and waters of the United States shall	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			be identified in delineations approved by the U.S. Army Corps of Engineers. The following measure shall be implemented as a program under the preceding policy: • Restrict or modify proposed development in areas that contain wetlands, as defined by U.S. Army Corps of Engineers delineations, as necessary to ensure the continued health and survival of special-status species and sensitive areas. Development projects shall preferably be modified to avoid impacts on sensitive resources or to adequately mitigate impacts by providing on-site	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			replacement or (as a lowest priority) off-site replacement at a higher ratio. The following measure shall be implemented as a program under the preceding policy: • The City shall require the project proponent to obtain all necessary permits pertaining to affected waters of the United States, including wetland habitat, stream channels, and open water habitats regulated by the California Department of Fish and Game and/or the Central Valley Regional Water Quality Control Board prior to construction. Grading or other construction activities within streambeds or open waters may require	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			streambed alteration agreements from the California Department of Fish and Game. Discharge of fill into waters of the United States will require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers and Clean Water Act Section 401 certification from the Central Valley Regional Water Quality Control Board. The permitting process will also require compensation for construction impacts. The following measure shall be implemented as a program under the preceding policy: • Where complete avoidance of wetlands is not	

Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			possible, require provision of on-site replacement habitat through restoration and/or habitat creation at an appropriate ratio determined through consultation with the U.S. Army Corps of Engineers, provided that no net loss of wetland acreage, function, and habitat values occurs. Allow restoration of wetlands off-site only when an applicant has demonstrated that no net loss of wetlands would occur and that on-site restoration is not practical or would result in isolated wetlands of extremely limited value. Off-site wetland mitigation preferably would	

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
				consist of the same habitat type as the wetland area that would be lost.	
Impact 4.4.3	Land uses and development consistent with the proposed General Plan could result in the loss of jurisdictional waters of the U.S, including wetlands. This would be considered a potentially significant impact.	Policy 5.3.A, Policy 5.3.B, Policy 5.3.C, Policy 5.3.D, Policy 5.6.A, Program 5.6.A.3, Policy 5.6.B, Program 5.6.B.1	**PS**	The incorporation of the policies and programs listed above as well as mitigation measures **MM 4.4.1a** through **MM 4.4.1g, MM 4.4.2d,** and **MM 4.4.2e** would mitigate impacts to waters of the U.S., including wetlands, would result in no net loss of wetlands, and would therefore reduce potential impacts to jurisdictional waters and wetlands.	**LS**
Impact 4.4.4	Land uses and development consistent with the proposed General Plan could restrict aquatic or terrestrial wildlife movement through travel corridors. This would be considered a potentially significant impact.	Policy 5.3.A, Program 5.6.A.3, Policy 5.6.B, Program 5.6.B.1	**PS**	The incorporation of the policies and programs described above as well as mitigation measures **MM 4.4.1a, MM 4.4.1b, MM 4.4.1e, MM 4.4.1f, MM 4.4.1g,** and **MM 4.4.2b** would mitigate impacts to wildlife movement corridors and would therefore reduce potential impacts to wildlife corridors.	**LS**
Impact 4.4.5	Proposed policies in the proposed General Plan that affect biological resources may differ from local policies and ordinances currently in effect. However, potential conflicts would be addressed by the revisions of the implementing ordinances to ensure that they conform to the proposed policies. This would be considered a less	Program 2.1.A.3	**LS**	None Required	**LS**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
	than significant impact.					
Impact 4.4.6	The proposed General Plan, in combination with other reasonably foreseeable projects, would result in direct mortality and loss of habitat for special-status species, and loss of waters of the U.S., including wetlands. This would be a cumulatively considerable impact.	General Plan policies and programs as listed under **Impacts 4.4.1** through **4.4.5** would reduce the proposed General Plan's contribution to this impact.	**CC**	Implementation of the proposed General Plan policies, programs, and mitigation measures discussed under **Impacts 4.4.1** through **4.4.5** will reduce the proposed General Plan's impacts to these resources to a less than significant level		**LCC**
4.5 Cultural Resources						
Impact 4.5.1	Implementation of the proposed General Plan could result in the potential disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains. This would be a potentially significant impact.	None	**PS**	**MM 4.5.1a**	The following mitigation measure shall be added as a new goal within the proposed City of Orland General Plan Land Use Element: • Promote the preservation of the historic, archaeological, and paleontological resources of the City for their scientific, educational, and cultural values.	**LS**
				MM 4.5.1b	The following mitigation measure shall be incorporated as a policy under the preceding proposed goal in	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			mitigation measure **MM 4.5.1a:** • The City shall require appropriate surveys and site investigations when needed as part of the initial environmental assessment for development projects in accordance with the California Environmental Quality Act (CEQA). Surveys and investigations shall be performed under the supervision of a professional archaeologist or other person qualified in the appropriate field and shall be approved by the City. • If it is determined that a proposed project would impact a known historical or cultural	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			resource, then each resource must be recorded and evaluated for eligibility for inclusion in the California Register of Historic Resources. All investigations shall be conducted by a professional archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in historic archaeology. • Where prehistoric or historic resources are discovered that are determined to be eligible for the California Register of Historic Resources, development shall be required to implement measures for the protection of the identified	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			archaeological resources consistent with the provisions of Public Resources Code Section 21083.2 (i.e., excavation of the archaeological resource by qualified archaeologists leading to the curation of recovered materials and publication of resulting information and analysis, and avoidance or capping of the cultural resource site, etc.). The results of archival research and/or pre-construction investigations shall be provided to the City for review, along with recommendations regarding construction measures (e.g., excavation and	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			recovery or avoidance) prior to the commencement of construction. **MM 4.5.1c** The following mitigation measure shall be incorporated as a policy under the preceding proposed goal in mitigation measure **MM 4.5.1a**: • The City shall impose the following conditions on all discretionary projects in areas which do not have a significant potential for containing archaeological or paleontological resources: "If human remains are discovered, all work must stop in the immediate vicinity of the find, the City of Orland Planning Department shall be notified immediately, and	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			the County Coroner must be notified according to Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the coroner will notify the Native American Heritage Commission, and the procedures outlined in CEQA Section 15064.5(d) and (e) shall be followed."	
Impact 4.5.2 Future construction activities associated with implementation of the proposed General Plan could result in impacts to undiscovered paleontological resources. This is considered a potentially significant impact.	None	**PS**	**MM 4.5.2** The following mitigation measure shall be incorporated as a policy under the proposed goal in mitigation measure **MM 4.5.1a**: • The City shall impose the following conditions on all discretionary projects in areas which do not have a significant	**LS**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			potential for containing archaeological or paleontological resources: "If any paleontological resources (fossils) are discovered during ground disturbing project activity, all work in the immediate vicinity must stop and the City of Orland Planning Department shall be immediately notified. A qualified paleontologist shall be retained to evaluate the finds and recommend appropriate mitigation measures for the inadvertently discovered paleontological resources. • "The City of Orland and the project applicant shall consider the	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			mitigation measures recommended by the qualified paleontologist for any unanticipated discoveries. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures. The project proponent shall be required to implement any mitigation measures deemed necessary by the City and the qualified paleontologist for the protection of the paleontological resources."	
Impact 4.5.3 Implementation of the proposed General Plan, along with existing, approved, proposed, and foreseeable development in the vicinity of the City, could	None	**CC**	Implementation of mitigation measures **MM 4.5.1a, 4.5.1b,** and **4.5.1c** would assist in reducing significant cumulative impacts to known and unknown prehistoric and historic resources and human remains.	**LCC**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
	contribute to cumulative impacts to prehistoric resources, historic resources, and human remains. This contribution is considered cumulatively considerable.					
Impact 4.5.4	Implementation of the proposed General Plan, along with existing, approved, proposed and foreseeable development in the region could result in the potential disturbance of paleontological resources (i.e., fossils and fossil formations). This is considered a cumulatively considerable impact.	None	**CC**	Implementation of mitigation measure **MM 4.5.2** would assist in reducing significant cumulative impacts to known and unknown paleontological resources.		**LCC**
4.6 Geology, Seismicity, Soils, and Hazardous Materials						
Impact 4.6.1	Implementation of the proposed General Plan may result in the placement of structures and development in areas of seismic sensitivity. This is considered a potentially significant impact.	Policy 4.6.A, Program 4.6.A.1, Program 4.6.A.2, Program 4.6.A.3, Program 4.6.A.4, Policy 4.6.B, Policy 4.6.C	**PS**	**MM 4.6.1**	The following measure shall be implemented as a program under Policy 4.6.A of the proposed General Plan: • The City shall require that all construction comply with the California Building Code, including the requirements for seismic design. The City shall incorporate updated and	**LS**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
				revised versions of the California Building Code, and public buildings designed for assembly such as schools and police stations shall be constructed to meet state seismic safety and building standards.	
Impact 4.6.2	Implementation of the proposed General Plan may result in substantial construction and site preparation activities. These activities increase soil erosion, wind and water erosion, and siltation of local drainages during construction, excavation and grading activities. This is considered to be a less than significant impact.	Program 5.6.A.1, Program 5.6.A.2	**LS**	None Required	**LS**
Impact 4.6.3	Implementation of the proposed General Plan may allow for development in areas with unstable soils. This is considered a less than significant impact.	Policy 4.6.A, Program 4.6.A.1, Program 4.6.A.2, Program 4.6.A.3, Program 4.6.A.4, Policy 4.6.B, Policy 4.6.C	**LS**	None Required	**LS**
Impact 4.6.4	Implementation of the proposed General Plan could impact areas where soils may be incapable of adequately supporting the use of	Policy 5.8.B, Program 5.8.A.1	**LS**	None Required	**LS**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
	septic tanks or alternative wastewater disposal systems. This would be a less than significant impact.					
Impact 4.6.5	Implementation of the proposed General Plan would lead to the establishment of more land use activities that would use and/or store hazardous materials and increase the amount of traffic carrying these materials. This is considered a less than significant impact.	Policy 4.7.A, Program 4.7.A.1, Program 4.7.A.2, Program 4.7.A.3, Policy 4.7.B	**LS**	None Required		**LS**
Impact 4.6.6	The Planning Area consists of land uses having the potential to result in the release of hazardous materials. Although there are federal, state, and local laws in place to minimize accidental release of hazardous materials, there is potential hazard to the public and the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. This is considered a potentially significant impact.	Policy 4.7.A, Program 4.7.A.1, Program 4.7.A.2, Program 4.7.A.3, Policy 4.7.B	**PS**	**MM 4.6.6**	The following measure shall be incorporated as a program under Policy 4.7.A of the proposed General Plan: • As part of its Development Review process, the City shall require project applicants to submit a Phase I Environmental Site Assessment for their project site if the City determines the project may be on or near a potentially contaminated site.	**LS**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			The Phase I Environmental Site Assessment shall identify the potential for asbestos, lead, and PCBs to occur on the project site. The City may require a more detailed site assessment (i.e., Phase II Environmental Site Assessment) if it concludes that site conditions warrant further analysis. If contamination of a project site is identified, the City shall require actions that eliminate the hazard posed by the contamination or reduce it to a level that is less than significant. Actions may include, but are not limited to, removal of the contamination or	

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
				avoidance of use of contaminated groundwater.	
Impact 4.6.7	Implementation of the proposed General Plan could potentially result in the loss of availability of aggregate resources, which are locally important due to their use by the construction community in development of the area. This is considered to be a less than significant impact.	None	**LS**	None Required	**LS**
Impact 4.6.8	Implementation of the proposed General Plan could impair implementation of or physically interfere with the Glenn County Emergency Operations Plan (EOP). This is considered a less than significant impact.	Policy 4.1.B, Program 4.1.B.1, Program 4.1.B.2	**LS**	None Required	**LS**
Impact 4.6.9	Cumulative development in the City has the potential to locate buildings and persons in areas considered to be potentially hazardous. This is considered a less than	General Plan policies and programs as listed under Impacts 4.6.1 through 4.6.3 would reduce the proposed General Plan's contribution to this impact.	**LCC**	None Required	**LCC**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	cumulatively considerable impact.				
Impact 4.6.10	Implementation of the proposed City of Orland General Plan could expose persons to hazards throughout the life of the General Plan. This is considered a less than cumulatively considerable impact.	General Plan policies and programs as listed under Impacts 4.6.5, 4.6.6, and 4.6.8 would reduce the proposed General Plan's contribution to this impact.	**LCC**	None Required	**LCC**
4.7 Hydrology and Water Quality					
Impact 4.7.1	Implementation of the proposed General Plan could result in an alteration of existing drainage, in the discharge of polluted runoff, discharge that could cause harm to the biological integrity of waterways, adversely impact water quality standards, or otherwise substantially degrade surface water quality. This is considered a potentially significant impact.	Policy 5.6.A, Program 5.6.A.1, Program 5.6.A.2, Program 5.6.A.3, Policy 5.6.B, Program 5.6.B.3, Policy 5.6.D, Program 5.9.B.2, Program 5.9.B.3	**LS**	None Required	**LS**
Impact 4.7.2	Implementation of the proposed General Plan could result in a reduction of groundwater recharge resulting from future land uses. This is considered a	Policy 5.6.B, Program 5.6.B.1, Policy 5.6.E, Policy 5.7.A, Program 5.7.A.1, Program 5.7.A.2, Policy 5.7.B, Program 5.7.B.1	**LS**	None Required	**LS**

Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	potentially significant impact.				
Impact 4.7.3	Implementation of the proposed General Plan could result in the degradation of groundwater quality resulting from future land uses. This is considered a potentially significant impact.	Policy 5.6.A, Policy 5.6.B, Program 5.6.B.1, Program 5.6.B.2, Policy 5.6.C, Policy 5.6.E, Policy 5.7.A, Program 5.7.A.1, Program 5.7.A.2, Policy 5.7.B, Program 5.7.B.1	**LS**	None Required	**LS**
Impact 4.7.4	Implementation of the proposed General Plan could result in a substantial alteration of an existing drainage pattern, including through the alteration of the course of a stream or river. This alteration may substantially increase the rate of amount of surface runoff in a manner that would result in flooding on- or off-site or could result in the creation or contribution of runoff water which would exceed the capacity of existing or planned stormwater drainage systems. Implementation of the proposed General Plan may impede or redirect flood flows or expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam or result in inundation by seiche, tsunami, or mudflow. This impact is	Policy 4.2.A, Program 4.2.A.1, Program 4.2.A.2, Policy 4.2.B, Policy 4.2.C, Policy 5.9.A, Program 5.9.A.1, Program 5.9.A.3, Policy 5.9.D, Program 5.9.D.1, Program 5.9.D.2	**LS**	None Required	**LS**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	considered a potentially significant impact.				
Impact 4.7.5	Implementation of the proposed General Plan and potential development of the City would include substantial grading, site preparation, and an increase in urbanized development. Increased development would contribute to cumulative water quality impacts and is considered cumulatively considerable.	General Plan policies and programs as listed under **Impacts 4.7.1** through **4.7.4** would reduce the proposed General Plan's contribution to this impact.	**LCC**	None Required	**LCC**
Impact 4.7.6	Implementation of the proposed General Plan would increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions along the Sacramento River and other local waterways. However, the proposed General Plan contains adequate proposed General Plan policies and programs that address drainage and flooding issues. This is considered a less than cumulatively considerable impact.	General Plan policies and programs as listed under **Impact 4.7.4** would reduce the proposed General Plan's contribution to this impact.	**LCC**	None Required	**LCC**
4.8 Land Use					
Impact 4.8.1	Land use designation changes in the proposed General Plan have the potential to physically divide	Policy 2.1.A, Program 2.1.A.4, Policy 2.2.B, Policy 2.3.A, Program 2.3.A.3	**LS**	None Required	**LS**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	or impact an established community. This is considered a less than significant impact.				
Impact 4.8.2	Implementation of the proposed General Plan could lead to inconsistency with other land use plans and ordinances, particularly the City's Zoning Ordinance. This is considered a less than significant impact.	None	**LS**	None Required	**LS**
Impact 4.8.3	The proposed General Plan would not conflict with any habitat conservation plan or natural community conservation plan in the area. Consequently, there is no impact.	None	**NI**	None Required	**NI**
Impact 4.8.4	Implementation of the proposed General Plan, in addition to existing, proposed, approved, and reasonably foreseeable development in the City and Glenn County, would contribute to cumulative land conflicts. This would be a less than cumulatively considerable impact.	General Plan policies and programs as listed under **Impact 4.8.1** would reduce the proposed General Plan's contribution to this impact.	**LTCC**	None Required	**LTCC**
4.9 Noise					
Impact 4.9.1	Implementation of the proposed General Plan would result in the adoption of the new goals, policies and programs designed to address noise. This would be	None	**LS**	None Required	**LS**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	considered a less than significant impact.				
Impact 4.9.2	Future development of noise-sensitive land uses within areas which are either currently impacted by noise or are in areas which may be impacted by noise in the future would result in less than significant noise impacts under the proposed General Plan.	Policy 6.1.A, Policy 6.1.B, Policy 6.1.D, Policy 6.1.E, Policy 6.1.F, Policy 6.1.G, Policy 6.1.H	**LS**	None Required	**LS**
Impact 4.9.3	Future development of noise-producing land uses near noise-sensitive land uses would result in potentially significant noise impacts under the proposed General Plan.	Policy 6.1.E, Policy 6.1.F, Policy 6.1.G, Policy 6.1.H	**PS**	None Required	**LS**
Impact 4.9.4	Implementation of the proposed General Plan would result in significant increases in traffic noise levels at existing noise-sensitive areas within Orland. This is considered a significant impact.	General Plan policies and programs as listed under **Impacts 4.9.2** and **4.9.3,** as well as mitigation measure **MM 4.9.4**, would reduce the proposed General Plan's contribution to this impact.	**S**	**MM 4.9.4** The following mitigation measure shall be added as a new policy under Goal 6.1 of the proposed General Plan: • The City shall adopt a citywide noise reduction program to reduce traffic and other noise levels Citywide. The program shall include, but shall not be limited to, the following	**SU**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
				specific elements for noise abatement consideration where reasonable and feasible. • Noise barrier retrofits • Truck usage restrictions • Reduction of speed limits • Use of quieter paving materials • Building façade sound insulation • Traffic calming • Additional enforcement of speed limits and exhaust noise laws • Signal timing	
Impact 4.9.5	Implementation of the proposed General Plan would not expose future land uses and residents to significant levels of aircraft related noise. This is considered a less than significant impact.	None	**LS**	None Required	**LS**

Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.9.6	Implementation of the proposed General Plan would result in significant increases in noise levels within Orland. This is considered a significant impact.	General Plan policies and programs as listed under **Impacts 4.9.2** as well as mitigation measure **MM 4.9.4**, would reduce the proposed General Plan's contribution to this impact.	**CC**	None Available	**SU**
4.10 Population and Housing					
Impact 4.10.1	Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the Planning Area. This is a significant impact.	None	**S**	None Feasible	**SU**
Impact 4.10.2	Implementation of the proposed General Plan may result in the displacement of housing and/or persons due to the construction of infrastructure necessary to serve new development or revitalization efforts. This is considered a less than significant impact.	None	**LS**	None Required	**LS**
Impact 4.10.3	Implementation of the proposed General Plan, in addition to existing, proposed, approved, and reasonably foreseeable development in the area, could result in a cumulative increase in population and housing growth in the City and associated	None	**CC**	None Feasible	**SU**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
environmental impacts. This is a cumulatively considerable impact.				
4.11 Community Services				
Impact 4.11.1.1 Implementation of the proposed General Plan would increase the demand for fire protection and emergency medical services. This is considered a potentially significant impact.	Policy 4.3.A, Program 4.3.A.1, Program 4.3.A.2, Program 4.3.A.3, Program 4.3.A.4, Program 4.3.A.5, Policy 4.3.B, Policy 4.3.C	**LS**	None Required	**LS**
Impact 4.11.1.2 Implementation of the proposed General Plan could result in safety hazards associated with wildland fires in residential areas adjacent to open space and natural areas. This is considered a less than significant impact.	Policy 4.3.A, Program 4.3.A.1, Program 4.3.A.2, Program 4.3.A.3, Program 4.3.A.4, Program 4.3.A.5, Policy 4.3.B, Policy 4.3.C	**LS**	None Required	**LS**
Impact 4.11.1.3 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the City, contributing to the cumulative demand for fire protection and emergency medical services. As a result, additional fire and emergency medical services and related facilities would be required. This is considered a less than cumulatively considerable impact.	General Plan policies and programs as listed under **Impacts 4.11.1.1** and **4.11.1.2** would reduce the proposed General Plan's contribution to this impact.	**LTCC**	None Required	**LTCC**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.11.2.1	The proposed General Plan would increase the demand for police protection services, which would require additional staff and facilities. This is considered a less than significant impact.	Policy 4.4.A, Program 4.4.A.1, Program 4.4.A.2, Program 4.4.A.3, Policy 4.4.B, Program 4.4.B.1, Program 4.4.B.2	**LS**	None Required	**LS**
Impact 4.11.2.2	Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the City, contributing to the cumulative demand for law enforcement services and facilities. As a result, additional law enforcement services and related facilities would be required. This is considered a less than cumulatively considerable impact.	General Plan policies and programs as listed under **Impact 4.11.2.1** would reduce the proposed General Plan's contribution to this impact.	**LTCC**	None Required	**LTCC**
Impact 4.11.3.1	Implementation of the proposed General Plan would increase demand for school services provided by the Orland Unified School District. This is considered a less than significant impact.	The proposed Orland General Plan contains no policies or programs that would assist in reducing any potential impacts to public schools because the provisions of SB 50 state that a city does not have the ability to condition any land use approval, whether	**LS**	None Required	**LS**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	legislative or adjudicative, on the need for school facilities. Additionally, SB 50 establishes the dollar amount school districts may impose on new development.			
Impact 4.11.3.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would result in a cumulative increase in student enrollment and require additional schools and related facilities to accommodate the growth. This is a cumulatively considerable impact.	General Plan policies and programs as listed under **Impact 4.11.3.1** would reduce the proposed General Plan's contribution to this impact.	**LTCC**	None Required	**LTCC**
Impact 4.11.4.1 Implementation of the proposed General Plan would encourage an increase in the local population, thereby leading to an increase in the use of existing park and recreation service facilities. This is considered a potentially significant impact.	Policy 5.10.A, Program 5.10.A.1, Program 5.10.A.2, Program 5.10.A.3, Program 5.10.A.4, Program 5.10.A.6, Program 5.10.A.8, Policy 5.10.D, Program 5.10.D.1	**PS**	**MM 4.11.4.1** The following mitigation measure shall be incorporated as a program under Policy 5.10.D in the Open Space, Conservation, and Public Facilities Element: • During its annual budget review, the City shall consider the needs of park facilities and will support those needs with budget revenues, grants, and impact fees. As	**LS**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			part of the budget review process, the City shall review impact fee rates to ensure that the cost of improvements is equitably distributed.	
Impact 4.11.4.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would require additional park and recreation facilities within the Planning Area boundaries. This would be a less than cumulatively considerable impact.	General Plan policies and programs as listed under **Impact 4.11.4.1** would reduce the proposed General Plan's contribution to this impact.	**LTCC**	None Required	**LTCC**
4.12 Public Services				
Impact 4.12.1.1 Implementation of the proposed General Plan would result in the need for additional treatment capacity, storage capacity, and other conveyance facilities to meet the projected water demands. This is considered to be a potentially significant impact.	Policy 2.2.B, Program 2.2.B.1, Policy 5.7.B, Program 5.7.B.1, Program 5.7.B.2	**PS**	**MM 4.12.1.1a** The following mitigation measure shall be added as a policy in the Land Use Element under Goal 2.1 of the proposed General Plan. The City shall ensure the development of public infrastructure to meet the long-term needs of residents and ensure infrastructure is	**LS**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			available at the time such facilities are needed. **MM 4.12.1.1b** The following measures shall be added as programs under the preceding proposed policy. • Require sufficient capacity in all public facilities to maintain desired service levels and avoid capacity shortages or other negative effects on safety and quality of life. • Continue to implement the City's adopted sewer, stormwater, and water master plans to ensure the development of public facilities in a logical manner that encourages the orderly development of roadways, water and sewer, and other public	

Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			facilities. **MM 4.12.1.1c** The following mitigation measure shall be added as a policy in the Open Space, Conservation, and Public Facilities Element under Goal 5.7 of the proposed General Plan: • The City shall ensure that water supply and delivery systems are available to meet the demand created by new development. **MM 4.12.1.1d** The following measures shall be added as programs under the preceding proposed policy. • Require all development projects, excluding subdivisions, to adhere to the following provisions: – An assured water supply	

Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			and delivery system shall be available at the time of project approval. The Orland Public Water Service may provide several alternative methods of supply and/or delivery, provided that each is capable individually of providing water to the project. – All required water infrastructure for the project shall be in place prior to project or unit occupancy, or shall be assured through the use of bonds or other financial sureties to the City's	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			satisfaction. Water infrastructure may be phased to coincide with the phased development of large-scale projects. • Require all subdivision developments to adhere to the following provisions: – Proposed water supply and delivery systems shall be identified at the time of tentative map approval, to the satisfaction of the City. The Orland Public Water System may provide several alternative methods of supply and/or delivery,	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			provided that each is capable individually of providing water to the project. – All new development shall demonstrate prior to the approval of the Final Map that sufficient capacity will be available to accommodate the subdivision plus existing developments, other approved projects in the same service area, and other projects which have received commitments for water service. – Off-site and on-site water infrastructure sufficient to provide	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			adequate water to the subdivision shall be in place prior to the approval of the Final Map or infrastructure financing shall be assured to the satisfaction of the City, consistent with the requirements of the Subdivision Map Act. – Off-site and on-site water distribution systems required to serve the subdivision shall be in place and shall contain water at sufficient quality, quantity, and pressure, prior to the issuance	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			of any building permits. Model homes may be exempted from this policy as determined appropriate by, and subject to approval of, the City.	
Impact 4.12.1.2 Implementation of the proposed General Plan would increase demand on existing water supplies. This is considered to be a potentially significant impact.	Policy 5.6.E, Policy 5.7.B, Program 5.7.B.1, Program 5.7.B.2	**PS**	General Plan policies and programs listed under **Impact 4.12.1.1**, as well as mitigation measures **MM 4.12.1.1a** through **MM 4.12.1.1d** would ensure that sufficient water capacity is available to support new development in conjunction with existing development.	**LS**
Impact 4.12.1.3 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the Planning Area, contributing to the cumulative demand for water resources and associated facilities. As a result, additional water supply resources would be required. This is considered a cumulatively considerable impact.	General Plan policies and programs listed under **Impact 4.12.1.1** would reduce the proposed General Plan's contribution to this impact.	**CC**	Implementation of the proposed General Plan policies and programs listed under **Impact 4.12.1.1** along with mitigation measures **MM 4.12.1.1a** through **MM 4.12.1.1d** would ensure that there is adequate water supply and facilities available.	**LTCC**
Impact 4.12.2.1 Implementation of the proposed General Plan would substantially increase wastewater flows and	Policy 2.2.B, Program 2.2.B.1Policy 5.8.A, Program 5.8.A.2, Program 5.8.A.3, Program 5.8.A.4,	**PS**	**MM 4.12.2.1** The following mitigation measure shall be added as a program under Policy 5.8.A of the	**LS**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
require additional infrastructure and may require additional treatment capacity to accommodate anticipated demands that would result in a physical effect on the environment. This impact is considered potentially significant.	Policy 5.8.B, Program 5.8.B.1, Policy 5.8.C, Program 5.8.C.1		proposed General Plan. Require all subdivision developments to adhere to the following provisions, to the extent permitted by state law: • All future development shall demonstrate prior to the approval of the Final Map by the City that sufficient treatment capacity is or will be available to accommodate the subdivision. • On-site and off-site sewage conveyance systems required to serve all future development shall be in place prior to the approval of occupancy permits, or their financing shall be assured to the satisfaction of the City, consistent with the requirements of the Subdivision Map Act.	

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.12.2.2	Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the Planning Area, contributing to the cumulative demand for wastewater services and associated facilities. As a result, additional wastewater service resources would be required. This is considered a cumulatively considerable impact.	General Plan policies and programs listed under **Impact 4.12.2.1** would reduce the proposed General Plan's contribution to this impact.	**CC**	General Plan policies and associated programs listed under Impact 4.12.2.1, as well as mitigation measures **MM 4.12.1.1a** and **MM 4.12.2.1**, will assist in reducing the proposed General Plan's cumulative wastewater-related impacts.	**LTCC**
Impact 4.12.3.1	New development would increase stormwater runoff rates generated within and downstream of the proposed General Plan Planning Area when compared with existing conditions and would require additional infrastructure to accommodate anticipated demands that would result in a physical effect on the environment. This is considered a less than significant impact.	Policy 2.2.B, Program 2.2.B.1, Program 5.9.A.2, Program 5.9.A.3, Program 5.9.B.1, 5.9.E	**LS**	None required	**LS**
Impact 4.12.3.2	Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase development within the Planning Area, contributing to	General Plan policies and programs listed under **Impact 4.12.3.1** would reduce the proposed General Plan's contribution to this impact.	**LTCC**	None required	**LTCC**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
	the cumulative demand for stormwater services and associated facilities. As a result, additional stormwater service resources would be required. This is considered a less than cumulatively considerable impact.					
Impact 4.12.4.1	Implementation of the proposed General Plan would increase solid waste generation and the demand for related services. This is considered a potentially significant impact.	None	**PS**	**MM 4.12.4.1a**	The following mitigation measure shall be incorporated as a goal in the proposed City of Orland General Plan Safety Element under Goal 4.7. The City shall provide for solid waste collection, disposal services, and recycling in a cost-efficient manner.	**LS**
				MM 4.12.4.1b	The following measures shall be incorporated as policies under the preceding goal. • Continue contracting for garbage and recycling collection services. • Develop guidelines and standards for mandatory	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			recycling (AB 939) and organize solid waste disposal in new large-scale developments. **MM 4.12.4.1c** The following mitigation measure shall be incorporated as a goal in the proposed City of Orland General Plan Safety Element under Goal 4.7. Solid waste collection, handling, recycling, composting, recovery, transfer and disposal fees shall recover all capital, operating, and maintenance costs associated with the City solid waste program. **MM 4.12.4.1d** The following measures shall be incorporated as policies under the preceding goal. • Develop and continually monitor a solid waste disposal fee system based on the quantity of waste set out for disposal and provide incentives	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			for recovery. • Explore available alternatives for the establishment of a fiscally-viable citywide household recycling program.	
Impact 4.12.4.2 Implementation of the proposed General Plan would generate solid waste that would require expanded collection and disposal services. This is considered a cumulatively considerable impact.	General Plan policies and programs listed under **Impact 4.12.4.1** would reduce the proposed General Plan's contribution to this impact.	**CC**	General Plan policies and associated programs listed under Impact 4.12.4.1, as well as mitigation measures **MM 4.12.4.1a** and **MM 4.12.4.1d** will assist in reducing the proposed General Plan's cumulative solid waste-related impacts.	**LTCC**
Impact 4.12.5.1 Implementation of the proposed General Plan would substantially increase demand for electrical, natural gas, telephone, and related infrastructure. This is considered a less than significant impact.	Policy 2.2.B, Program 2.2.B.1	**LS**	None Required	**LS**
Impact 4.12.5.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the Planning Area, contributing to the cumulative demand for energy and communication services and associated facilities. As a result, additional resources would be required. This is considered a less	General Plan policies and programs listed under **Impact 4.12.5.1** would reduce the proposed General Plan's contribution to this impact.	**LTCC**	None Required	**LTCC**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
than cumulatively considerable impact.				
Transportation and Circulation				
Impact 4.13.1 Implementation of the proposed General Plan would result in increased traffic volumes and a decrease in LOS on area intersections. This is considered a potentially significant impact.	Policy 3.1.A, Program 3.2.E.1, Program 3.2.E.2, Policy 3.3C, Program 3.3.C.1, Policy 3.4.B, Policy 3.4.C	**PS**	**MM 4.13.1** The following intersections shall be added to the City's Capital Improvement Program as part of implementation of proposed General Plan Policy 3.3.A. <u>#1 – Newville Road & County Road HH</u> • Signalize the intersection • No additional lanes are necessary. However, the intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks). With implementation of these measures, this intersection would operate at LOS B with 11.4 seconds of delay during the a.m. peak hour and LOS B with 16.9 seconds of delay	**LS**

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			during the p.m. peak hour. These LOS are considered acceptable. #2 – Newville Road & I-5 Southbound Ramps • Signalize the intersection • No additional lanes are necessary. However, the intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks). With implementation of these measures, this intersection would operate at LOS B with 17.1 seconds of delay during the a.m. peak hour and LOS C with 20.0 seconds of delay during the p.m. peak hour. These LOS are considered acceptable. #3 – Newville Road & I-5 Northbound Ramps • Signalize the intersection • No additional lanes are necessary. However, the	

Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks). With implementation of these measures, this intersection would operate at LOS B with 15.8 seconds of delay during the a.m. peak hour and LOS C with 24.3 seconds of delay during the p.m. peak hour. These LOS are considered acceptable. #5 – Walker Street (SR 32) & 6th Street • Split the northbound combined through/right-turn lane into an exclusive northbound through lane, and an exclusive northbound-to-eastbound right-turn lane. With implementation of this measure, this intersection would	

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Impact	General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			operate at LOS C with 27.1 seconds of delay during the a.m. peak hour and LOS D with 48.1 seconds of delay during the p.m. peak hour. These LOS are considered acceptable. <u>#9 – SR 32 & County Road N</u> • Signalize the intersection • No additional lanes are necessary. However, the intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks). With implementation of these measures, this intersection would operate at LOS A with 9.9 seconds of delay during the a.m. peak hour and LOS B with 18.8 seconds of delay during the p.m. peak hour. These LOS are considered acceptable.	
Impact 4.13.2 Implementation of the proposed	Policy 3.1.A, Program 3.2.E.1, Program 3.2.E.2,	**PS**	Implementation of intersection mitigation measures described under mitigation	**LS**

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Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	General Plan would result in increased traffic volumes and a decrease in LOS on area roadways. This is considered a potentially significant impact.	Policy 3.3C, Policy 3.4.B, Policy 3.4.C		measure **MM 4.13.1** would result in acceptable traffic operating conditions in this portion of Walker Street (SR 32).	
Impact 4.13.3	Implementation of the proposed General Plan would result in an increase in the demand for transit service. This is considered a less than significant impact.	Policy 3.6.A, Program 3.6.A.1, Policy 3.6.B, Program 3.6.B.1, Policy 3.6.C, Policy 3.6.D	**LS**	None Required	**LS**
Impact 4.13.4	Implementation of the proposed General Plan would result in an increased demand for bicycle and pedestrian facilities. This is considered a less than significant impact.	Policy 3.7.A, Policy 3.7.B, Policy 3.7.C, Policy 3.7.D, Policy 3.8.A, Policy 3.8.B, Program 3.8.B.1, Policy 3.8.C, Policy 3.8.D, Policy 3.8.E	**LS**	None Required	**LS**
Impact 4.13.5	Implementation of the proposed General Plan would result in an increased demand for roadway capacity. This is considered a less than significant impact.	Policy 3.2.A, Program 3.2.A.1, Program 3.2.A.2, Program 3.2.A.3, Policy 3.2.C, Program 3.2.C.1, Policy 3.2.D, Program 3.2.D.1, Program 3.2.D.2, Policy 3.2.H	**LS**	None Required	**LS**
Impact 4.13.6	Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase traffic volumes on SR 32 through the year 2028 and beyond the General Plan 20-year planning horizon. The proposed General Plan's contribution to these conditions is considered	Program 3.3.C.1, Policy 3.4.B	**PCC**	Implementing of the improvements recommended by Caltrans in the *Transportation Concept Report State Route 32* would reduce this impact. **MM 4.13.6** The following mitigation measure shall be added as a new policy under Goal 3.4 of the proposed General	**SU**

S - Significant ***LS – Less Than Significant*** ***SU – Significant and Unavoidable***
PS-Potentially Significant ***CC - Cumulatively Considerable***
LTCC – Less Than Cumulatively Considerable ***NI – No Impact*** ***PCC - Potentially Cumulatively Considerable***

Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	potentially cumulatively considerable.			Plan: The City shall participate in regional roadway facility improvement programs established by Glenn County and/or Caltrans in order to address its fair-share of traffic impacts.	
Impact 4.13.7	Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional east-west roadway capacity. This is considered cumulatively considerable.	General Plan policies and programs listed under **Impact 4.13.1** through **Impact 4.13.2** would reduce the proposed General Plan's contribution to this impact.	**CC**	Mitigation measure **MM 4.13.6** will assist in reducing the proposed General Plan's cumulative wastewater-related impacts.	**SU**
Impact 4.13.8	Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road HH. This is considered cumulatively considerable.	The proposed City of Orland General Plan contains no policies or programs that would assist in reducing potential cumulative impacts to County Road HH specifically.	**CC**	Mitigation measure **MM 4.13.6** will assist in reducing the proposed General Plan's cumulative wastewater-related impacts	**SU**
Impact 4.13.9	Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional	The proposed City of Orland General Plan contains no policies or programs that would assist in reducing potential	**CC**	Mitigation measure **MM 4.13.6** will assist in reducing the proposed General Plan's cumulative wastewater-related impacts	**SU**

Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
	roadway capacity on County Road 20. This is considered cumulatively considerable.	cumulative impacts to County Road 20 specifically.				
Greenhouse Gases and Climate Change						
Impact 5.0.1	Subsequent land use activities associated with implementation of the proposed General Plan, in combination with existing, approved, proposed, and reasonably foreseeable development in the Planning Area, would result in the cumulative increase of greenhouse gases including CO_2 emitted into the atmosphere. Implementation of the proposed General Plan would implement a number of policies that would complement and be consistent with the early emission reduction strategies contained in the California Climate Action Team's (CAT) Report to the Governor and Executive Order S-3-05. This impact is considered to be potentially cumulatively considerable.	Policy 5.5A, Policy 5.5B, Policy 5.5C, Policy 5.5E, Policy 5.5F, Policy 5.5G, Policy 5.5H, Policy 3.3C, Program 3.3.C.1, Program 3.6.A.1, Policy 3.6.B, Program 3.6.B.1, Policy 3.6.C, Policy 3.7.A, Policy 3.7.B, Policy 3.7.D. Policy 3.8.A, Policy 3.8.B, Program 3.8.B.1, Policy 3.8.C	**PCC**	**MM 5.0.1**	The following measure shall be implemented as a policy under Goal 5.5 of the proposed General Plan: The City shall instigate the development of a Climate Action Plan in order to document how the City plans to reduce its greenhouse emissions to the eventual goal of achieving carbon neutrality. This Climate Action Plan shall be updated periodically in order to examine progress of the Plan and contain the following: • A City greenhouse gas emission inventory baseline • City greenhouse gas emission forecasts • Greenhouse gas emissions	**LTCC**

S - Significant ***LS – Less Than Significant*** ***SU – Significant and Unavoidable***
PS-Potentially Significant ***CC - Cumulatively Considerable***
LTCC – Less Than Cumulatively Considerable ***NI – No Impact*** ***PCC - Potentially Cumulatively Considerable***

Impact		General Plan Policies and Program Numbers	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
				reduction targets • Proposed measures and policies to met reduction targets	
Impact 5.0.2	Implementation of the proposed General Plan could substantially increase emissions of GHGs over existing conditions that could result in environmental effects to the City. This impact is considered to be less than cumulatively considerable impact.	Policy 5.5A, Policy 5.5B, Policy 5.5C, Policy 5.5E, Policy 5.5F, Policy 5.5G, Policy 5.5H, Policy 3.3C, Program 3.3.C.1, Program 3.6.A.1, Policy 3.6.B, Program 3.6.B.1, Policy 3.6.C, Policy 3.7.A, Policy 3.7.B, Policy 3.7.D. Policy 3.8.A, Policy 3.8.B, Program 3.8.B.1, Policy 3.8.C	**LTCC**	None Required	**LTCC**

3.0 Project Description

This section of the Draft Environmental Impact Report (Draft EIR or DEIR) is the project description of the proposed City of Orland General Plan (Project or proposed General Plan). The purpose of the project description is to describe the Project in a way that will be meaningful to the public, reviewing agencies, and decision-makers. As described in Section 15124 of the California Environmental Quality Act (CEQA) Guidelines, a complete project description must contain the following information but is not required to supply extensive detail beyond that needed for evaluation and review of the potential environmental impacts:

- The location and boundaries of the proposed project on a regional and detail map;
- A statement of objectives sought by the proposed project;
- A general description of the project's technical, economic, and environmental characteristics; and,
- A statement briefly describing the intended uses of the DEIR.

For a complete discussion of the CEQA requirements for a project description, please refer to State CEQA Guidelines Section 15124.

3.1 PROJECT LOCATION

The City of Orland is located in Glenn County in Northern California's Sacramento Valley, approximately 100 miles north of Sacramento. The City is located approximately 16 miles north of the City of Willows, the county seat of Glenn County, and approximately 22 miles west of the City of Chico in Butte County. Interstate 5 (I-5) passes along the western boundary of Orland, while State Route 32 goes through the center of the City on its way east toward Chico (see **Figure 3.0-1** for location). The City encompasses approximately 1,876 acres, or 2.93 square miles, while the Orland Planning Area encompasses 4,110 acres, or 6.42 square miles. According to the 2000 U.S. Census, the population of Orland was 6,281 in 2000. As of 2008, the City had an estimated population of 7,353 (California Department of Finance, 2008). In 2010, the Department of Finance estimated the population of Orland to be 7,501 persons.

3.2 PROJECT SETTING

Approximately 2.47 square miles of land were within the Orland city limits at the time of the adoption of the previous General Plan Update in 2003. Since that time, the City has annexed a total of approximately 295 acres of land. The current city limits encompass 2.93 square miles. In planning for growth and development, the state's General Plan Guidelines allow a city to include lands outside its city limits within its planning area. For the purposes of the proposed General Plan, the Planning Area, which covers approximately 6.42 square miles (4,109 acres), generally follows the LAFCo-adopted Secondary Sphere of Influence boundary of the City. However, in the southern portion of the Planning Area, the Planning Area boundary follows that of the Primary Sphere of Influence for the City. Also, the northern boundary of the Planning Area was extended beyond the Secondary Sphere of Influence boundary to extend to the Stony Creek floodplain.

Traditionally, Orland has served as a public service center for residents of the City, northern Glenn County, and parts of southern Tehama County. Public service facilities for City residents are concentrated in the downtown area including City Hall, the Orland Police Department, the Orland Volunteer Fire Department, and the Orland Library. The U.S. Post Office is also located in the downtown area. A substation for the Glenn County Sheriff's Department is located in Orland,

along with the Orland Branch of the County Court and one of the two maintenance yards for the County Department of Public Works. Located in the northern portion of the City is Orland High School, which serves high school students throughout northern Glenn County with the exception of those students in the Hamilton City area. The Glenn County Fairgrounds are located in southern Orland.

As is the case in most cities in California, Orland is divided into several distinct areas, as indicated by its land use pattern. These areas include the downtown and its adjacent historic neighborhoods, linear commercial development along both County Road 99W (Sixth Street) and East Walker Street (State Route 32), industrial development adjacent to the railroad tracks, and freeway-oriented commercial activities located around the I-5 interchanges. Most of the older residential development exists in the eastern portion of the City, east of the railroad. More recent residential development has occurred around the edges of the City, particularly in the southern portion and in the northwestern and northeastern corners.

3.3 GENERAL PLAN BACKGROUND

GENERAL PLAN REQUIREMENTS

State law requires each city and county to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning" (California Government Code Section 65300). The California Supreme Court has called the general plan the "constitution for future development." The general plan may be amended up to four times per year and should be updated as necessary to reflect changes in community conditions and goals. Each general plan has seven mandatory elements: land use, circulation and traffic, housing, conservation, open space, noise, and safety. All mandatory elements have equal legal status, and all elements must be both internally consistent and consistent with the other elements. State law allows the combining of mandatory elements, as the local jurisdiction determines appropriate, to eliminate redundancies and to facilitate the required consistency between elements. A combined element must have all required contents of the individual elements that are combined. A local jurisdiction may add optional elements that are not required under state law. These optional elements, as part of the adopted general plan, have the same legal authority as the mandatory elements and must meet the same consistency requirements.

The Orland General Plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, both public and private. The existing Orland General Plan has six elements, as the Conservation and Open Space Elements were combined into one element, but includes all the required contents of the seven mandatory elements. The existing General Plan has no optional elements.

The policies of a general plan are intended to underlie most land use decisions. Pursuant to state law, subdivisions, capital improvements, development agreements, and many other land use actions must be consistent with the adopted general plan. In counties and general law cities, such as the City of Orland, zoning and specific plans are also required to conform to the general plan. Implementation of general plan goals, policies, and programs occurs through a variety of mechanisms. These mechanisms include, but are not limited to, the zoning ordinance, subdivision ordinance, building codes, specific plans, and funding programs such as the Community Development Block Grant (CDBG) program.

Figure 3.0-2

Orland Planning Boundaries

Planning Area

City Boundary

0 0.25 0.5 Miles

UNION HIGH SCHOOL
GCOE BUTTE COLLEGE
OUWUA HEADQUARTERS
MILL STREET GRAMMER SCHOOL
GLENN COUNTY FAIRGROUNDS
CHAS. K. PRICE GRAMMER SCHOOL
FAIRVIEW GRAMMER SCHOOL
CITY CORPERATION YARD
LELY AQUATIC PARK
HAIGH FIELD
Hamright Creek
Stony Creek
Terminal Colusa Canal
INTERSTATE 5
UPRR
HWY 32
WALKER ST
WYO AVE
BRYANT ST
SUNSET AVE

ORLAND GENERAL PLAN HISTORY

The first City of Orland General Plan was completed in 1974. Certain elements, such as Land Use and Circulation, were updated in 1991, 1993, and 1994. In 2000, minor revisions to the General Plan were completed. In October 2002, the City of Orland updated its General Plan through a comprehensive review of all elements; the City adopted the updated document in 2003.

3.4 PROPOSED GENERAL PLAN UPDATE CHARACTERISTICS

GENERAL PLAN UPDATE PURPOSES AND OBJECTIVES

The proposed Planning Area includes the City's corporate boundary and additional lands identified as being within the Primary and portions of the Secondary Spheres of Influence (see **Figure 3.0-2**). Generally, the Planning Area is bounded by Road 21 on the south, Stony Creek on the north, Road P on the east, and Road H on the west. Lands affected are located within a portion of Township 22 North, Range 3 West, as shown on the USGS Kirkwood and Orland, California, 7.5-minute series quadrangles.

The purpose of the proposed City of Orland General Plan is to review and revise the 2003 General Plan, to reflect upon changing conditions and issues, and to provide direction for the future growth of the City for the next 20 years. The proposed Orland General Plan is a comprehensive document that provides policies and guidelines for the future expansion and development of the community. Population projections for Orland were developed based upon historical population growth rates, as derived from figures in **Table 4.0-3** of Section 4.0 of this document. As mentioned in Section 1.0 - Introduction, based upon the time of filing for the Notice of Preparation for the DEIR, the Department of Finance estimated 2008 population of 7,353 is used in as the baseline for the projections over the proposed General Plan 20-year period.

Three growth rates were used to develop the population estimates. The "High" growth rate is a 2.6 percent average annual growth rate, which was the growth rate of the City's population from 1970 to 2000. The "Medium" rate is a 2.2 percent average annual growth rate, which was the growth rate of the City's population from 1990 to 2000, the most recent years recorded by the U.S. Census Bureau. The "Low" growth rate of a 1.8 percent average annual growth was determined by subtracting the difference between the Medium and High rates from the Medium rate. For the 2028 lifespan of the proposed General Plan, the population and housing unit count will be based on the High growth rate which establishes a 2028 population of 12,286 and a housing unit count of 4,433 for Orland.

It is acknowledged that the population and housing unit projections used by this document are theoretical and this population and housing unit count may not be reached during the proposed General Plan lifespan, buildout projections were calculated for the purposes of this document and totaled at 46,513 people and 16,419 residential units. Buildout projections are shown in **Table 4.0-1** of Section 4.0 of this document. Buildout is defined as the development of land to its theoretical capacity, as permitted under the land use designation. Buildout assumes theoretical optimum conditions by multiplying the number of acres by the maximum number of housing units allowed per acre, per land use designation. Buildout calculations do not take into account site-specific constraints, economic factors, market forces, or regulatory requirements imposed by local, state, or federal agencies. Therefore, while the theoretical maximum buildout potential may produce 16,419 dwelling units with a resultant population of 46, 513, the reality is that this number of units will most likely not be built within the planning horizon of the proposed

General Plan. Utilizing the City's current 2.2 percent average annual growth rate since 1970, the maximum buildout population would not be projected to occur until the year 2096.

The General Plan serves as the foundation for various planning documents that help support and implement the General Plan including the City of Orland Zoning Ordinance, the City of Orland Subdivision Ordinance, area plans, and other planning documents. The General Plan is the graphic and textual description of how the citizens of Orland wish to see development in their community occur, and it serves as a planning guidebook to decision-makers, staff, and citizens.

The General Plan is intended to take a long-term perspective and to establish enduring policies that help guide day-to-day decision-making for years to come. Time frames for various topics and policies differ throughout the General Plan, with the Housing Element requiring an update every five years. The General Plan considers goals, policies, and programs that will impact the City for at least the next 20 years.

The proposed General Plan states its intent as serving as a policy guide for the physical and economic growth and environmental sustainability of the City of Orland and the proposed Planning Area through the year 2028. The General Plan will be used to inform citizens, developers, agencies, interest groups, and others of the policies and programs that will guide development-related decisions in the community. The proposed General Plan would provide the long-term vision for the community and indicate how that vision would be achieved over time, through its goals, policies, and programs. The proposed General Plan has five fundamental purposes:

- To enable the City Council to reach agreement on long-range development policies.
- To provide a basis for judging whether specific public and private development proposals are in harmony with City policies.
- To allow other public agencies and private developers to design projects that are consistent with City policies or to seek changes in those policies through the process of amending the General Plan.
- To facilitate an agreement among different agencies for development in unincorporated portions of the Planning Area.
- To provide a basis for revising and updating other land use regulations and ordinances of the City, including the Zoning Ordinance.



N

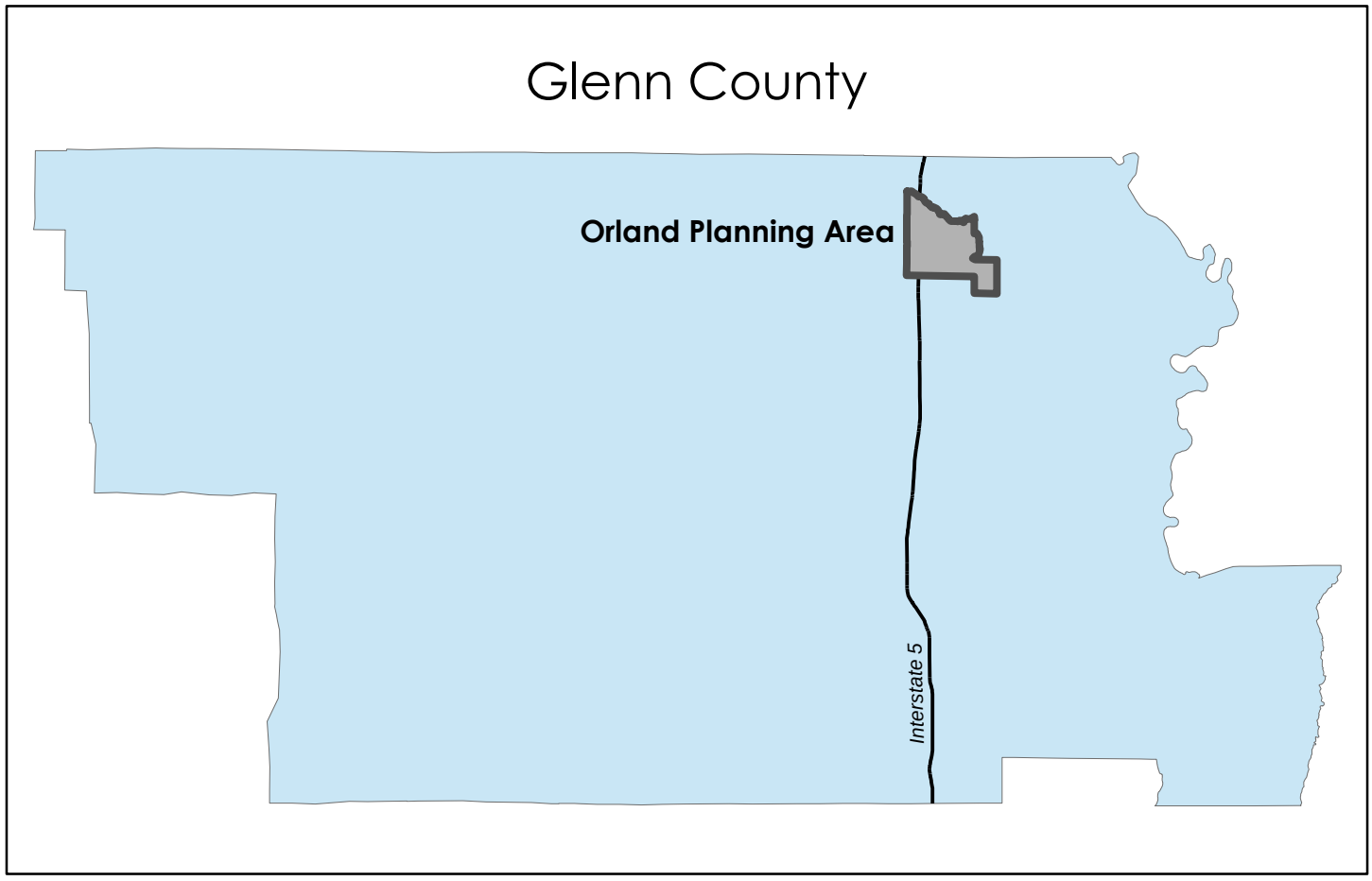


FIGURE 3.0-1

Regional Location

The objectives of the proposed General Plan Update are as follows:

- Establish a compact and contiguous growth pattern that reinforces past development patterns and limits the encroachment of urban development on the agricultural economy and environmental resources outside the proposed Sphere of Influence.

- Establish multiple connections, as part of all new development projects, to adjacent neighborhoods and travel routes.

- Ensure that new developments use a street pattern, building and parking siting arrangement, scale, and landscape character which builds on and extends Orland's traditional street grid and character.

- Ensure adequate public services, facilities, and recreational opportunities will be provided or are available before new development projects proceed.

- Provide commercial, office-professional, light industrial, and industrial lands in sufficient acreages to allow for a balance of jobs and housing.

- Improve the quality of the built environment.

Consistent with the overall guidance provided by the City Council, the proposed General Plan does not reflect a major change in policy or land use direction but instead is intended to consolidate existing policies, address new topics required by law, and provide reasonable programs that can be accomplished within the capacity of the City's resources. However, there is one key policy issue that warrants special attention and consideration: The topic of global climate change has been discussed at length and is addressed as part of the updated Draft General Plan document. New climate change and related policies contained in the proposed General Plan address this emerging issue as well as the recommended guidelines from the State of California related to greenhouse gas emissions.

PROPOSED GENERAL PLAN ELEMENTS

The proposed General Plan contains the seven mandatory elements required by state law. One of the mandatory elements, Housing, was adopted in April 2009 by the City Council. The Housing Element must be consistent with the remaining elements of the proposed General Plan. The elements in the proposed General Plan and analyzed by the DEIR are briefly described below.

Land Use

The Land Use Element would include a variety of goals and policies regarding residential, commercial, industrial, and public land uses. California Government Code Section 65302(a) requires that the General Plan include a land use element, which addresses:

> The proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, and other categories of public and private uses of land. The land use element shall include a statement of the standards of population density and building intensity recommended for the various districts and other territory covered by the plan…

The goals of the Land Use Element in the proposed General Plan are as follows:

Goal 2.1: Maintain and promote the qualities that make Orland a desirable community.

Goal 2.2: Maintain a compact urban form and preserve agricultural land outside of the City.

Goal 2.3: Create and maintain neighborhoods that ensure a high quality of life in Orland.

Goal 2.4: Promote the expansion and retention of existing commercial establishments and encourage new commercial development in the City.

Goal 2.5: Promote economic growth in the City of Orland through attraction and retention of industry in order to enhance employment opportunity and maximize the availability of goods and services within the community.

The Land Use Element includes a proposed General Plan Land Use Diagram, a detailed land use plan for the City of Orland and its proposed Planning Area **(Figure 3.0-3)**. This diagram assigns land use designations to all lands within the proposed Planning Area. Land use designations under the proposed Land Use Diagram include:

- Low Density Residential – allows 0-6 housing units per acre
- Medium Density Residential – allows 6-10 housing units per acre
- High Density Residential – allows 10-25 housing units per acre
- Mixed Use
- Commercial
- Public Facility
- Heavy Industrial
- Light Industrial/Commercial
- Public Facility
- Open Space/Resources Conservation

Special Planning Districts

The Special Planning Districts are overlay designations which portray uses the City would encourage. Special Planning Districts have been defined within the proposed General Plan to document the major planning issues of areas which may be developed during the term of the General Plan. The general character and anticipated uses envisioned by the City are described for each Special Planning District. The Special Planning Districts are listed below and graphically depicted on **Figure 3.0-4.**

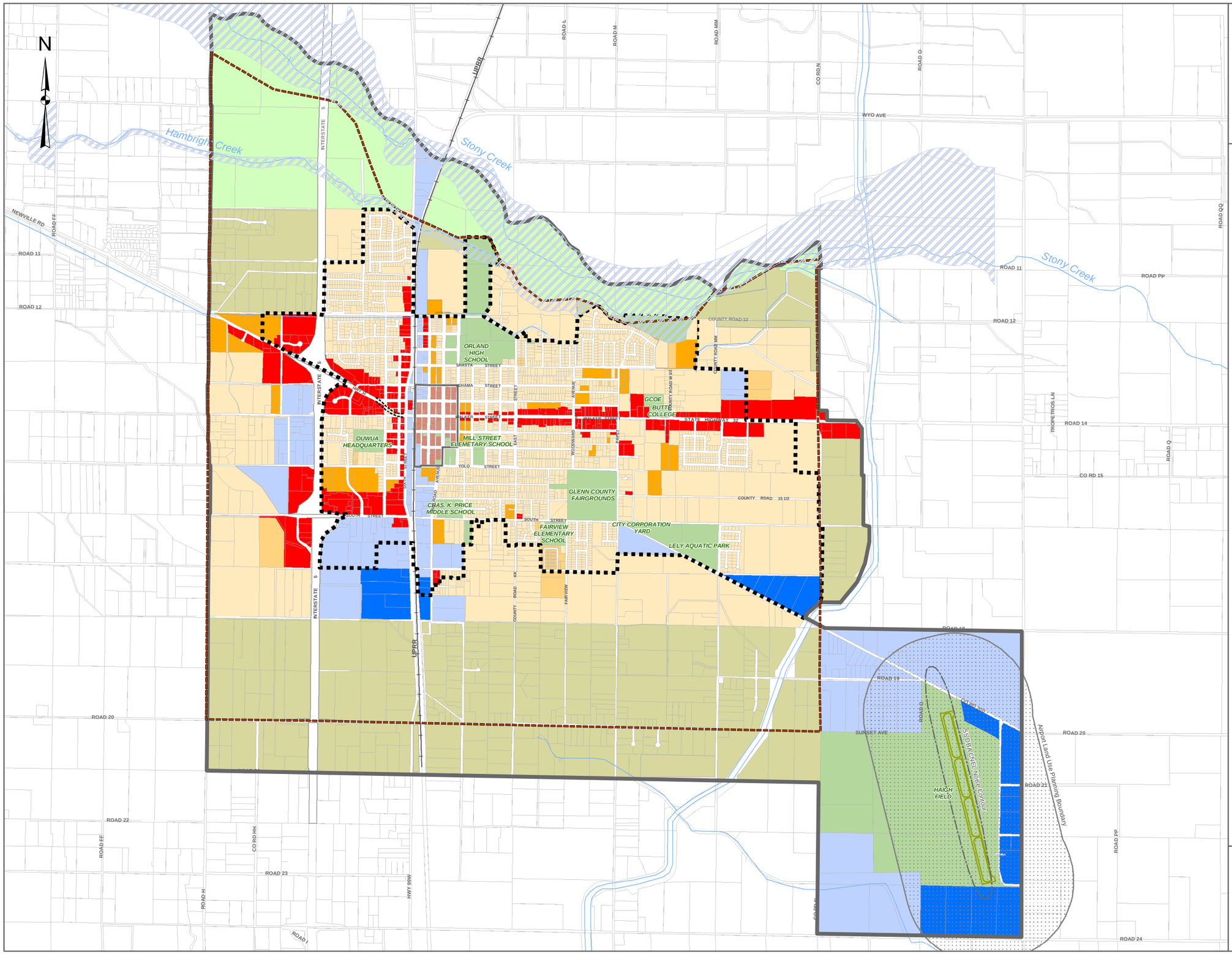
Downtown District

- Sixth Street District
- Walker Street District
- Southwest Orland Special Planning Area
- Westside Freeway Special Planning Area
- Northeast Orland Special Planning Area

In a few cases, designations in the proposed Land Use Diagram would differ from those in the current General Plan. One of the proposed designations would be new: Mixed Use. All other designations in the current General Plan would remain the same in the proposed General Plan.

Figure 3.0-3

Land Use Diagram



- Planning Area
- City Boundary
- SOI
- C - Commercial
- I-H - Heavy Industrial
- I-L/C - Light Industrial/Comm.
- R-E - Residential Estate
- R-L - Low Density Residential
- R-M - Med. Density Residential
- R-H - High Density Residential
- P-F - Public Facility
- M - Mixed Use
- OS/RC - Open Space/ Resource Conservation
- 100-Year Floodplain

The area designated as Open Space / Resource Conservation land is intended to reflect the 100-year floodplain as delineated on FEMA FIRM Maps Nos. 165 and 170.

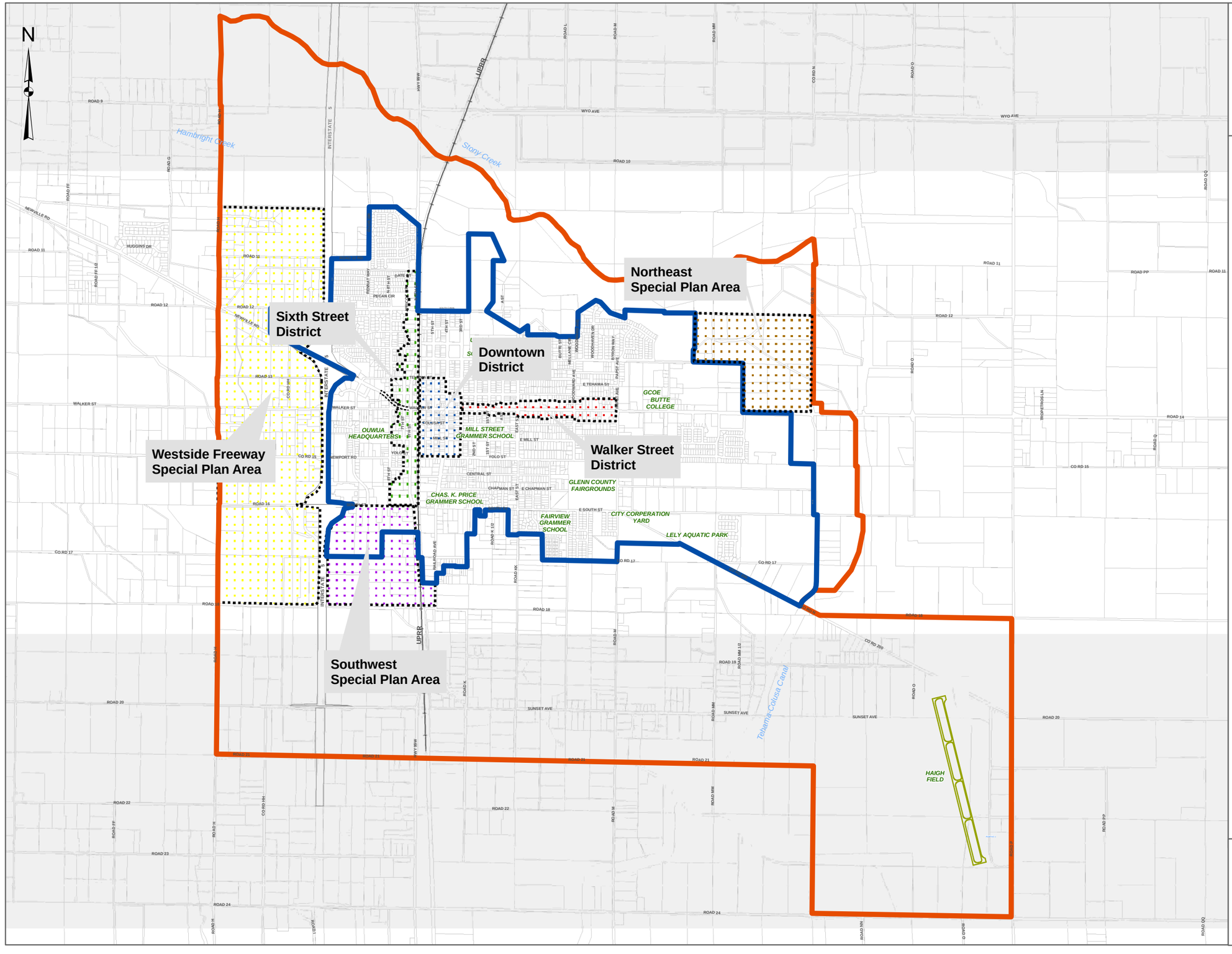
0 0.25 0.5 Miles

CITY OF ORLAND 1875

PMC

Figure 3.0-4

Special Planning Districts



Planning Area

City Boundary

0 0.25 0.5 Miles

Table 3.0-1 provides a breakdown of designated land uses by acreage within the proposed Planning Area, as set forth in the Land Use Diagram for the proposed General Plan.

TABLE 3.0-1
DESIGNATED LAND USES IN PROPOSED SPHERE OF INFLUENCE/PLANNING AREA

Land Use Designation	Existing Acreage	Proposed Acreage	Change (acres)	Percentage Change
Commercial	247.3	276.8	29.5	11.9%
Heavy Industrial	36.6	214.7	178.1	486.6%
Light Industrial/Commercial	295.7	651.4	355.7	120.3%
Open Space/Resources Conservation	440.4	668.8	228.4	51.9%
Public Facility	183.7	583.7	400	217.7%
Residential Estate	785.7	1,681.2	895.5	114.0%
High Density Residential	65.9	107.7	41.8	63.4%
Medium Density Residential	54.7	53.9	–0.8	-1.5%
Low Density Residential	1,501.3	1,674.4	173.1	11.5%
Mixed Use (new designation)	0	22.9	22.9	---
Other	484.2	668.5	184.3	38.1%
Total	**4,095.5**	**6,603.0**	**2,507.5**	**61.2%**

Circulation

California Government Code Section 65302(b) requires that the General Plan include a circulation element that describes plans and measures to provide for the City's transportation and circulation system as follows:

> The circulation element consists of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan.

The Circulation Element would encourage building and maintaining a safe and efficient local street and highway system. It also would emphasize the use of alternate modes of transportation, such as public transit, bicycles, and pedestrian travel. Policies and programs would address needs in the overall transportation system and discuss methods by which these needs would be met.

The goals of the Circulation Element in the proposed General Plan are as follows:

Goal 3.1: Plan for, provide and maintain a circulation system that permits the safe and efficient movement of people and goods throughout the City and Orland Planning Area.

Goal 3.2: Establish a system of safe and efficient local, collector and arterial roads to reduce travel time and improve traffic safety that is consistent with the land use patterns of the City.

Goal 3.3: Formulate and adopt circulation design and improvement standards that require a level of service consistent with the demands generated by proposed development, public safety, and the efficient use of public and private resources and which are uniformly applied in the Orland Planning Area.

Goal 3.4: Achieve a coordinated regional and local transportation system that minimizes traffic congestion and efficiently serves users.

Goal 3.5: Provide safe and efficient parking and loading facilities for all non-residential land uses.

Goal 3.6: Encourage transportation alternatives to the automobile.

Goal 3.7: Encourage the establishment of a non-vehicular circulation system linking important public places within the community.

Goal 3.8: Promote a safe sidewalk system which provides maximum opportunities for pedestrian traffic throughout the City.

Goal 3.9: Contribute towards improving the air quality of the region through more efficient use of private vehicles and increased use of alternative transportation modes.

Goal 3.10: Provide the highest level of roadway maintenance for City residents.

Safety

California Government Code Section 65302(g) requires that the General Plan include a safety element. A safety element is to protect the community from any unreasonable risks associated with the following:

> Effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence, liquefaction and other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wild land and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, military installations, peak load water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.

The Safety Element contains goals, policies, and programs designed to promote public safety in times of natural disasters, including earthquakes and floods. It also considers hazards more manmade in character, such as fires, hazardous material incidents, and airport safety. This element discusses emergency response services and plans.

The goals of the Safety Element in the proposed General Plan are as follows:

Goal 4.1: Ensure that the City of Orland and involved agencies are able to effectively respond to emergency situations that may threaten the people and property of Orland.

Goal 4.2: Minimize the risk of personal injury and property damage resulting from flooding.

Goal 4.3: Protect people and property within the City of Orland against fire related loss and damage.

Goal 4.4: Provide police and emergency medical services in a well-planned, cost-effective, and professional manner.

Goal 4.5: Ensure a range of health care services are conveniently available to City residents.

Goal 4.6: Minimize the threat of personal injury and property damage due to seismic and geologic hazards.

Goal 4.7: Minimize the risk of personal injury, property damage, and environmental degradation resulting from the use, transport, disposal, and release/discharge of hazardous materials.

Goal 4.8: Minimize the potential for hazards related to rail service in and around the City of Orland.

Goal 4.9: Ensure public safety during airport operations

Open Space, Conservation, and Public Facilities

The proposed General Plan would combine two state-required elements — Open Space and Conservation — into a single element. California Government Code Section 65302(e) requires that the General Plan include an open space element that describes plans and measures for preserving open space for the following:

- Natural resources;
- Managed production of resources;
- Outdoor recreation;
- Protect public health and safety;
- Support military uses; and
- Protect identified places, features, and objects.

California Government Code Section 65302(d) requires that the General Plan include a conservation element for the conservation, development, and utilization of natural resources. The parks, recreation and resource conservation element provides for the conservation, development, and use of natural resources; details, plans and measures for the preservation of open space; and provides for outdoor recreation facilities. The overall goal of the element is to preserve a comprehensive interconnected system of open space, encompassing preservation and enhancement of natural habitat areas, for the use and enjoyment of the community. The element also integrates related land use, transportation and circulation, transit, and energy issues.

The Open Space, Conservation, and Public Facilities Element focuses on goals that preserve, protect, and enhance open space areas, including sensitive local resource areas such as wetlands, agricultural lands, and lands adjacent to Stony Creek. Its policies would address natural habitat protection, park dedication and development standards, and recreational

facilities. This element also would provide guidance for environmental issues such as air quality, water quality, biodiversity, and wastewater.

The goals of the Open Space, Conservation, and Public Facilities Element in the proposed General Plan are as follows:

Goal 5.1: Promote and protect the continued viability of agriculture surrounding Orland.

Goal 5.2: Ensure that all mining activity is appropriately permitted and that mines are effectively reclaimed.

Goal 5.3: Minimize impacts to wildlife and wildlife habitat as new development occurs within the Orland Planning Area.

Goal 5.4: Maintain and protect air quality within the City of Orland at acceptable levels as defined by state and federal standards.

Goal 5.5: Reduce the contribution of greenhouse gases from existing sources and minimize the contribution of greenhouse gases from new construction and sources.

Goal 5.6: Conserve, enhance, and manage water resources, protect their quality, and assure an adequate long-term supply of water for domestic, agricultural, industrial, and recreational use.

Goal 5.7: Protect the quantity and quality of community water supplies.

Goal 5.8: Provide quality wastewater service to all existing and future City residents.

Goal 5.9: Provide for the collection, transport, and stormwater in a safe manner to protect people and property from damage arising from storm drainage.

Goal 5.10: Develop and sustain an integrated and cohesively designed park system that is complimentary to existing and proposed development as well as the natural environment. This shall include development and maintenance of a network of recreational trails, bicycle lanes and bikeways.

Noise

California Government Code Section 65302(f) requires that the General Plan include a noise element to be used as a guide for establishing a pattern of land uses that minimizes the exposure of community residents to excessive noise. The noise element shall identify and appraise noise problems in the community. The noise element will recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

- Highways and freeways.
- Primary arterials and major local streets.
- Passenger and freight on-line railroad operations and ground rapid transit systems.

- Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.

- Local industrial plants, including, but not limited to, railroad classification yards.

- Other ground stationary noise sources, including, but not limited to, military installations, identified by local agencies as contributing to the community noise environment.

- Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (L_{dn}).

The main intent of the Noise Element would be to protect noise-sensitive land uses from new noise-generating uses that would be incompatible with such sensitive receptors. Its policies and programs would address issues of noise mitigation in project design and the use of proper site planning that addresses noise issues, i.e., building orientation, setbacks, landscaping, and building construction practices.

The goals of the Noise Element in the proposed General Plan are as follows:

Goal 6.1: Protect citizens of Orland from the harmful effects of exposure to excessive noise. Additionally, protect existing noise-sensitive land uses from new uses that would generate noise levels that are incompatible with those uses, and discourage new noise-sensitive land uses from being developed near sources of high noise levels.

Housing

As mandated by the State of California, the Housing Element is required to be updated every five years and approved by State's Department of Housing and Community Development (HCD). The Housing Element includes a section on the Summary of Needs and Constraints, a Housing Program with goals and policies, and a background report highlighting demographics, resources, and review of past Housing Elements. Because the Housing Element is on a different timeline than the General Plan, it will be completed as a separate document. The required environmental review of this document will be completed per the timeline of the Housing Element update. The existing Housing Element goals are as follows:

Goal 7.1: Development, through public and private resources, of sufficient new housing to ensure the availability of safe, affordable housing for all households in Orland.

Goal 7.2: Assurance of choice of housing location for all residents of Orland.

Goal 7.3: Maintenance and improvement of the quality and affordability of the existing housing stock and the neighborhoods in which it is located.

Goal 7.4: Promote equal access to safe and decent housing for all income groups.

Goal 7.5: Promote energy conservation activities in all residential areas.

Goal 7.6: Increase opportunities for special needs groups (elderly, large families, families with female heads of household, farmworkers, disabled, transitional, and homeless) to obtain adequate housing.

OTHER GENERAL PLAN UPDATE CHARACTERISTICS

In addition to addressing the required elements, the General Plan must also serve the following functions:

- **Long-Range Scope**: The General Plan must have a long-term perspective, establishing durable policies upon which daily decisions can be made for a period of many years. Although the Housing Element requires an update every five years, goals and policies for other sections may consider community values or needs over a period of 15 to 20 years. The proposed General Plan would establish goals, policies, and programs through 2028.

- **Geographical Comprehensiveness**: The General Plan must consider all areas within the city limits, as well as "any land outside its boundaries which, in the planning agency's judgment, bears relation to its planning" (California Government Code Section 65300). This area includes the City's Planning Area and any adjacent lands that may be affected by implementation of the General Plan. **Figure 3.0-2** illustrates the Planning Area of the proposed General Plan.

- **Topical Comprehensiveness**: The General Plan must cover a broad range of issues relevant to the Planning Area. Land use designations in the City's proposed General Plan consider impacts on environmental, social, and economic concerns.

- **Internal Consistency:** Government Code Section 65300.5 requires that the General Plan be internally consistent through all of its elements. In other words, no policy conflicts may exist within the document. The requirement for internal consistency is reflected in five ways:

  - Equal status among elements: policies of one element are not legally superior to policies of any other element.

  - Consistency between elements: every element of the General Plan must be consistent with all other elements.

  - Consistency within elements: each element's analysis and goals, policies, and programs must be consistent and complementary.

  - Area plan consistency: all goals, policies, and programs in an area plan must be consistent with the General Plan.

  - Text and diagram consistency: figures and tables must be consistent with the text supporting them.

The City has drafted the proposed General Plan pursuant to the provisions of Government Code Section 65300.5 regarding internal consistency.

3.5 INTENDED USE OF THE EIR AND APPROVAL PROCESS

This DEIR may be used for the following direct and indirect actions regarding the Planning Area:

INTENDED USE OF THE EIR

This DEIR provides a programmatic environmental review of implementation of the proposed General Plan. Subsequent activities under the proposed General Plan would utilize this DEIR as the basis in determining whether the later activity may have any significant effects, to focus the environmental review of the subsequent activity, and the conclusions of this DEIR can be incorporated where factors apply to the program as a whole.

Following adoption of the proposed General Plan and certification of the DEIR by the City Council, all subsequent activities and development within the City will be guided by the goals and policies set forth in the new General Plan. The City Council is anticipated to conduct the following subsequent activities to implement the proposed General Plan:

- The City would initiate a comprehensive amendment of the City of Orland Zoning Code to achieve consistency with the adopted General Plan.
  - The Zoning Code would further define land use designations and the performance standards applicable to the land use designations.
  - The Zoning Code would establish the land use entitlement process applicable to the land use designations.
- The City would adopt financing programs or fee programs for public infrastructure.
  - The City would plan, finance, and construct public infrastructure projects or consider private development requests for infrastructure projects such as roadway improvements consistent with the General Plan Roadway System Map, construction of parks, trails, infrastructure improvements (e.g., water distribution and treatment facilities, wastewater facilities, drainage improvements), other capital improvements, and natural resource preservation and/or restoration.

The City may conduct or consider further focused planning studies.

- The City would consider approval of various private development entitlement requests (e.g., specific plans, master plans, tentative subdivision maps, design review, use permits) that are consistent with the proposed General Plan and its Land Use Map.

CITY OF ORLAND CERTIFICATION OF THE EIR

The proposed City's General Plan will be presented to the Orland City Council for review, comment, and recommendations. The City of Orland City Council, as the City's legislative body, is the approving authority for the proposed General Plan. In order to approve the proposed General Plan, the City Council would have to take the following actions:

- Certification of the City of Orland General Plan EIR.
- Adoption of required findings for the above actions, including required findings under the State CEQA Guidelines, Sections 15090, 15091, and 15093.
- Adoption of the City of Orland General Plan.

OTHER GOVERNMENTAL AGENCY APPROVALS

Additional subsequent approvals and permits that may be required from local, regional, state, and federal agencies in the processing of subsequent development permits include, but are not limited to, the following:

- County of Glenn Local Agency Formation Commission (LAFCo) approval of future requests to annex land into the City from unincorporated lands in Glenn County. LAFCo must also approve the formation, reorganization, incorporation, or consolidation of special districts that provide services within Glenn County.

- Glenn County Air Pollution Control District (GCAPCD) approval of dust control plans and other permits for subsequent projects.

- California Department of Transportation (Caltrans) approval of improvements and/or funding for future improvements on Interstate 5 or State Highway 32.

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

- California Department of Fish and Game (CDFG) approval of potential future streambed alteration agreements, pursuant to the Fish and Game Code. Approval of any future potential take of state-listed wildlife and plant species covered under the California Endangered Species Act.

- Central Valley Regional Water Quality Control Board (RWQCB) and State Water Resources Control Board (SWRCB) review and/or approval of any activity impacting Planning Area water features, pursuant to the California Clean Water Act and RWQCB standards.

- U.S. Army Corps of Engineers (COE) approval of any future wetland fill activities pursuant to the federal Clean Water Act.

- U.S. Fish and Wildlife Service (USFWS) approvals involving any future potential take of federally listed wildlife and plant species and their habitats covered under the federal Endangered Species Act.

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

REFERENCES

California Department of Finance (DOF). 2008. *E-5 Population and Housing Estimates, for Cities, Counties, and the State, 2001–2008*. August 2008. http://www.dof.ca.gov/HTML/DEMOGRAP/ReportsPapers/ReportsPapers.php

City of Orland. 2008. *Background Report for the General Plan Update*.

U.S. Bureau of the Census. 2000. *2000 Census*. http://www.census.gov/

4.0 Introduction to the Environmental Analysis and Assumptions Used

The following is an introduction to the proposed General Plan environmental analysis, cumulative analysis, and general assumptions used in the environmental analysis. Please refer to the individual technical sections of the Draft Environmental Impact Report (Draft EIR or DEIR) (Sections 4.1 through 4.13) regarding the specific assumptions and methodologies used in the analysis for those particular technical subjects.

ANALYSIS ASSUMPTIONS GENERALLY USED TO EVALUATE THE IMPACTS OF THE CITY OF ORLAND GENERAL PLAN

BASELINE ENVIRONMENTAL CONDITIONS ASSUMED IN THE DRAFT EIR

Section 15125(a) of the California Environmental Quality Act (CEQA) Guidelines requires that a DEIR include a description of the physical environmental conditions in the vicinity of a project, as they exist at the time the Notice of Preparation (NOP) is published. The CEQA Guidelines also specify that this description of the physical environmental conditions should serve as the baseline physical conditions by which a lead agency determines whether the impacts of a project are considered significant.

The environmental setting conditions of the City of Orland are described in detail in the individual technical sections of the Draft EIR (see Sections 4.1 through 4.13). In general, these sections describe the setting conditions of the City as they existed when the NOP for the project was released on October 21, 2008. The Department of Finance estimated 2008 population of 7,353 is used in as the baseline for the projections over the proposed General Plan 20-year period. In addition, the Draft EIR also includes information about the environmental setting that has been updated since the release of the NOP, such as the status of large-scale development projects within the General Plan Planning Area.

GROWTH ASSUMPTIONS UNDER THE PROPOSED GENERAL PLAN ASSOCIATED WITH THE PLANNING AREA

Future growth in the General Plan Planning Area is guided by the land uses identified in the proposed General Plan Land Use Diagram (see **Figure 3.0-3**). In the Draft EIR, impact analysis of both temporary [i.e., construction-related] and operational effects is based on these proposed land use patterns. However, because the theoretical buildout of the proposed General Plan land uses is high and highly unlikely to be realized within the planning period of the General Plan (2008–2028), an analysis of the population and housing growth expected by 2028 was completed. This analysis, as described later in this chapter, defines the anticipated population and housing units by the year 2028 and the anticipated non-residential growth in the City within the same planning period.

Subsequent requests for increases in development potential beyond what is set forth in the proposed General Plan would require approval of an amendment to the adopted General Plan and would be outside the scope of this DEIR's analysis.

Buildout Projection

Implementation of the proposed General Plan Land Use Plan would allow for more development, and therefore more potential population, than the existing General Plan. Buildout is defined as the development of land to its theoretical capacity, as permitted under the land use designation. Buildout assumes theoretical optimum conditions by multiplying the number of acres by the maximum number of housing units allowed per acre, per land use designation.

Buildout calculations do not take into account site-specific constraints, economic factors, market forces, or regulatory requirements imposed by local, state, or federal agencies. While the theoretical maximum buildout potential would produce 16,419 dwelling units with a resultant population of 46,513, it is highly likely that this number of units will not be built within the planning horizon of the proposed General Plan. Utilizing the City's current 2.2 percent average annual growth rate since 1970, the maximum buildout population would not occur until the year 2096.

Table 4.0-1, Maximum Residential Growth at Buildout, shows the calculated possible population from the 2003 General Plan, the additional acreage of undeveloped land in each undeveloped residential designation, the number of dwelling units possible, and possible buildout population estimates under the proposed General Plan. The population estimates are based on an assumption of 3.0 persons per single-family unit, 2.5 persons per medium density multi-family unit, and 2.0 persons per high density multi-family unit.

Table 4.0-2, Maximum Commercial and Industrial Growth at Buildout, shows the potential buildout for commercial, light industrial/commercial, and heavy industrial uses for the Planning Area. The table identifies the existing acreages, 2003 General Plan possible square footages, and total additional square footages possible under the current General Plan.

Under the 2003 General Plan, the City of Orland had 8,076,460 square feet available for commercial and industrial use. Under the proposed General Plan, there is an additional 7,034,940 square feet available, for a total square footage of 15,111,400 square feet eligible for commercial and industrial development.

TABLE 4.0-1
MAXIMUM RESIDENTIAL GROWTH AT BUILDOUT

Land Use Designation	Possible Population under 2003 General Plan	Additional Developable Acres under Proposed General Plan	Maximum Units per Acre	Additional Units	Population Per Unit	Additional Population under Proposed General Plan	Proposed General Plan Total Possible Population
Residential, Low Density (R-L)	27,021	173	6	1,038	3.0	3,114	30,135
Residential, Medium Density (R-M)	1,367	-1	10	-10	2.5	-25	1,342
Residential, High Density (R-H)	1,976	42	25	1,050	2.0	2,100	4,076
Residential, Estate (R-E)	4,713	896	2	1,792	3.0	5,377	10,090
Mixed Use (M)	-	29	15	435	2.0	870	870
Total	**35,082**	**1,138**		**4,305**		**11,436**	**46,513**

TABLE 4.0-2
MAXIMUM COMMERCIAL AND INDUSTRIAL GROWTH AT BUILDOUT

Land Use Designation	Possible Square Footage under 2003 General Plan	Additional Developable Acres under Proposed General Plan	Floor Area Ratio (FAR)	Additional Square Footage under Proposed General Plan	Proposed General Plan Total Additional Square Footage
Commercial – C	2,834,711	27	0.6	705,672	3,540,383
Light Industrial/Commercial – I-L/C	1,674,011	197	0.4	3,432,528	5,106,539
Heavy Industrial – I-H	3,567,738	95	0.7	2,896,740	6,464,478
Total	**8,076,460**	**319**		**7,034,940**	**15,111,400**

Planning Horizon Population and Housing Units

Population projections for Orland were developed based upon historical population growth rates, as derived from figures in **Table 4.0-3**. **Table 4.0-3** shows the five-year and ten-year average annual growth from 1970 through 2008. Between 1970 and 1975, the City of Orland had an average annual growth of 2.7 percent. Between 1970 and 1980, the average annual growth was 3.4 percent.

Three growth rates were used to develop the population estimates. The "High" growth rate is a 2.6 percent average annual growth rate, which was the growth rate of the City's population from 1970 to 2000. The "Medium" rate is a 2.2 percent average annual growth rate, which was the growth rate of the City's population from 1990 to 2000, the most recent years recorded by the U.S. Census Bureau. The "Low" growth rate of a 1.8 percent average annual growth was determined by subtracting the difference between the Medium and High rates from the Medium rate. For the 2028 lifespan of the proposed General Plan, the population and housing unit count will be based on the High growth rate which establishes a 2028 population of 12,286 and a housing unit count of 4,433 for Orland.

TABLE 4.0-3
POPULATION OF ORLAND AND GLENN COUNTY

Year	Orland	Glenn County	Five-Year Annual Growth	Ten-Year Annual Growth
1970	2,884	17,521		
1975	3,290	19,200	2.7%	
1980	4,031	21,350	4.2%	3.4%
1985	4,580	22,750	2.6%	
1990	5,052	24,798	2.0%	2.3%
1995	5,599	26,337	2.1%	
2000	6,281	26,453	2.3%	2.2%
2005	6,692	28.271	1.3%	
2008	7,353	28,915	2.0%	1.6%*

Sources: U.S. Census Bureau, California Department of Finance
*Notes: * Represents only an eight-year period, from 2000 to 2008.*

For the 2003 General Plan, the 2000 Census population of 6,281 was used as the baseline for the projections. The 2003 General Plan used a high growth rate at 2.6 percent, a medium growth rate of 2.2 percent, and a low growth rate of 1.8 percent. The actual average annual growth rate was 2.03 percent between 2000 and 2008, falling in between the Medium and Low projected growth rates of the 2003 General Plan. The population of Orland in January of 2008, as estimated by the California Department of Finance, was 7,353. The estimated 2008 population is used in as the baseline for the projections over the proposed General Plan 20-year period.

TABLE 4.0-4
GENERAL PLAN POPULATION PROJECTIONS FOR ORLAND, 2008–2028

Growth Rate	Orland Population				
	2008	2013	2018	2023	2028
High (2.6%)	7,353	8,360	9,505	10,806	12,286
Medium (2.2%)	7,353	8,198	9,141	10,191	11,363
Low (1.8 %)	7,353	8,039	8,789	9,609	10,506

Source: California Department of Finance, Demographic Research Unit, January 2008

Population and Housing Units Utilized for Impact Analysis during Proposed General Plan Lifespan

For the the proposed General Plan, the population and housing unit count is based on the High growth rate which establishes a 2028 population of 12,286 and a housing unit count of 4,433 for Orland. Under cumulative conditions, the DEIR will utilize the buildout projections shown in **Table 4.0-1** for impact analysis. However, it must be noted that this population and housing unit projection is only theoretical and this population and housing unit count may not be reached during the proposed General Plan lifespan.

Commercial and Industrial Growth Utilized for Impact Analysis during Proposed General Plan Lifespan

The proposed General Plan identifies a total of 274 acres designated as Commercial, 234 acres designated as Light Industrial/Commercial, and 391 acres designated as Heavy Industrial. **Table 4.0-5** shows the difference in acreage between the existing land use designation and the proposed land use designations.

TABLE 4.0-5
MAXIMUM BUILDOUT POTENTIAL
COMMERCIAL AND INDUSTRIAL LAND USE COMPARISON

Land Use	Proposed (acres)	Existing (acres)	Difference (acres)
Commercial	274	247	27
Light Industrial/Commercial	234	37	197
Heavy Industrial	391	296	95

However, as with the development potential for residential acreage as described above, the potential for full buildout of commercial and industrial designated lands during the proposed General Plan planning period is remote. As such, a more realistic development scenario was determined to be necessary.

The identification of projected commercial and industrial growth in the City during the proposed General Plan planning period is assumed to be directly related to population growth. Based on the population growth rate, and assuming that the existing land use patterns will remain relatively constant over the time period encompassed by the proposed General Plan, it is possible to estimate the amount of land needed to accommodate the population growth.

Table 4.0-6 illustrates the amount of land needed by the City to provide for the High, Medium, and Low growth rate estimates of population growth. As with the population and housing units, the General Plan DEIR will use the High growth scenario for analysis as it represents the largest level of growth anticipated for the City during the proposed General Plan planning period.

TABLE 4.0-6
ORLAND LAND USE DEVELOPMENT FORECAST

Land Use	Land Required (acres)				
	2008-2012	2013-2017	2018-2022	2023-2028	Total
All Residential					
High growth (2.6%)	75	86	97	111	**369**
Medium growth (2.2%)	64	70	79	89	**302**
Low growth (1.8%)	51	55	61	67	**234**
All Commercial					
High growth (2.6%)	13	15	17	19	**64**
Medium growth (2.2%)	11	12	13	15	**51**
Low growth (1.8%)	9	9	10	11	**39**
All Industrial					
High growth (2.6%)	15	17	19	22	**73**
Medium growth (2.2%)	12	14	15	17	**58**
Low growth (1.8%)	10	11	12	13	**46**
All Other					
High growth (2.6%)	62	71	81	92	**306**
Medium growth (2.2%)	52	58	64	72	**246**
Low growth (1.8%)	43	46	50	52	**191**
Total					
High growth (2.6%)	**165**	**189**	**214**	**244**	**812**
Medium growth (2.2%)	**139**	**157**	**171**	**193**	**660**
Low growth (1.8%)	**113**	**121**	**133**	**143**	**510**

STRUCTURE OF THE ENVIRONMENTAL IMPACT ANALYSIS

Sections 4.1 through 4.13 of this Draft EIR, as applicable to the topic of the particular section (e.g., Aesthetics), contain a detailed description of current setting conditions (including applicable regulatory framework) and an evaluation of the direct and indirect environmental effects resulting from the implementation of the proposed General Plan. Further, each section identifies proposed General Plan policies and programs that relate to and would serve to mitigate the environmental effect, additional feasible mitigation measures, and whether significant environmental effects of the proposed General Plan would remain after application of proposed policies, programs, and feasible mitigation measures. To further clarify the format, the individual technical sections of the Draft EIR are presented in the following format outline:

Existing Setting

This subsection includes a description of the physical setting conditions associated with the technical area of discussion, consistent with State CEQA Guidelines Section 15125. As previously identified above, the existing setting is based on conditions as they existed when the NOP for the project was released on October 21, 2008.

Regulatory Framework

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

Impacts and Mitigation Measures

The Impacts and Mitigation Measures subsection identifies direct and indirect environmental effects associated with implementation of the proposed General Plan and identifies those proposed General Plan policies and programs that will serve to mitigate the environmental effects. Standards of significance are identified and utilized to determine whether identified environmental effects are considered "significant" and require the application of mitigation measures. Each environmental impact analysis is identified numerically (e.g., Impact 4.1.1 – Alteration of Existing Visual Character).

Mitigation measures for the proposed General Plan were developed through a thorough review of the environmental effects of the proposed General Plan by consultants with technical expertise as well as by environmental professionals. After identification of proposed General Plan policies and programs that mitigate the environmental impact being discussed, any need for additional feasible mitigation measures that could minimize significant adverse impacts are discussed. The impact discussion then notes whether the impact has been mitigated to a less than significant level or remains significant and unavoidable.

A DEIR for a general plan is substantially different than a project-level DEIR in the way that mitigation measures are identified and incorporated back into the "project," which is the proposed general plan. This is a function of the general plan and DEIR being a set of programmatic documents as opposed to consideration of an actual development project with specific physical impacts. As much as possible, potential program-level environmental impacts related to the policies of a general plan are identified as the plan is being prepared. Additional policies and programs can then be formulated and proposed in the general plan to address and mitigate those impacts. Furthermore, the general plan actually establishes policies and programs by which the city will address environmental issues related to future implementation of the plan.

A second way that mitigation measures in a general plan DEIR differ from a project-level DEIR is that the general plan recognizes that future development projects will be required to undertake their own CEQA analysis when there is project-specific information that can be evaluated, as well as particular proposed project sites for which environmental impacts can be identified and evaluated.

APPROACH TO THE CUMULATIVE IMPACT ANALYSIS

Cumulative Setting and Impacts

This DEIR subsection is an analysis of the proposed General Plan's contribution, if any, to cumulative impacts to the environment. The analysis focuses on whether the proposed General Plan's contribution is "cumulatively considerable" (State CEQA Guidelines Section 15130) (see also Section 5.0, Cumulative Impacts Summary). A cumulative impact occurs from a change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA Guidelines Section 15355(b)). Accordingly, the cumulative setting includes related past, present, and reasonably foreseeable projects in the region. Section 5.0, Cumulative Impacts Summary, provides a summary of the cumulative impacts associated with the proposed General Plan.

Definition of Cumulative Setting

State CEQA Guidelines Section 15130 requires that DEIRs include an analysis of the cumulative impacts of a project when the project's effect is considered cumulatively considerable. In general, the cumulative setting conditions considered in this Draft EIR are based on:

- **Local Adopted General Plans.** The existing land use plans in the City of Orland region consisting of Glenn County, Butte County, Tehama County, Colusa County, and Mendocino County.

- **Large-Scale Development Projects.** Consideration of large-scale proposed and approved development projects listed in Table 4.0-7. This list of projects is intended to describe large-scale past, present, and reasonably foreseeable future development activities in the City of Orland region that, when considered with the proposed General Plan, have the potential to have cumulatively considerable impacts. The list is not intended to be an all-inclusive list of projects in the region.

- **Effect of Regional Conditions.** Consideration of background traffic volumes and patterns on U.S. and state highways (e.g., Interstate 5 and State Highway 32), background air quality conditions, and other associated environmental conditions that occur within the Glenn County Air Pollution Control District region, both within and outside of the Planning Area.

- **Consideration of Existing Development Patterns.** Consideration of the current environmental conditions of existing development and past land use activities in the region. This includes major land use activities in the area, agricultural activities and conversion of open space and agricultural lands from existing development patterns, and mining activities in the region.

Each technical section of the Draft EIR includes a description of the geographic extent of the cumulative setting based on the characteristics of the environmental issue under consideration, as set forth in Section 15130(b) of the State CEQA Guidelines.

TABLE 4.0-7
PROPOSED AND APPROVED LARGE-SCALE RESIDENTIAL PROJECTS

Project Name	Jurisdiction	Residential Acres	Residential Units
Benson	City of Orland	6.4	34
Blair Estates	City of Orland	8.9	37
Blair II	City of Orland	2.0	7
Blair III	City of Orland	3.5	17
Creekside Estates[1]	Glenn County	11.4	34
Embrey & Stokes[1]	Glenn County	32.19	120
El Paseo Subdivision	City of Orland	90.0	392
Fairview Village Subdivision	City of Orland	6.3	60
Fieldstone	City of Orland	10.2	42
Heartlands	City of Orland	44.9	151
Johnson[1]	Glenn County	3.22	16
Ledgerwood No. 7	City of Orland	3.8	12
Linwood Park Subdivision	City of Orland	27.7	85
Olive Leaf Estates/Horse Run Subdivision	City of Orland	22.6	87
Orland Park Subdivision	City of Orland	58.2	208
Paigewood Village	City of Orland	6.0	68 (3-story affordable housing complex)
Parker/Ginno Heritage Place	City of Orland	25.2	97
Penbrook Subdivision	City of Orland	5.4	23
Royce Estates	City of Orland	3.1	12
Thomas Ike	City of Orland	1.28	6
Tuscan Estates Subdivision	City of Orland	18.5	75
The Village	City of Orland	12.24	51
White Hawk Subdivision	City of Orland	20.0	59

Source: City of Orland Community Services Department, updated 12/20/08
Notes: 1. The City anticipates annexation of this project by 2028.

Consideration of Cumulative Impacts

Each technical section in the Draft EIR considers whether the project's effect on anticipated cumulative setting conditions is cumulatively considerable (i.e., a significant effect). "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (CEQA Guidelines, Section 15065(a)(3)) (see **Table 4.0-7**).

In evaluating cumulative impacts, it is often necessary to distinguish between two related questions: (1) Is the impact caused by cumulative conditions significant? (2) Is the project's

incremental effect cumulatively considerable? The need for cumulative impact assessment considers the fact that a project may cause an incremental impact that is minor or limited by itself and therefore not significant, but that the incremental impact may be significant when, combined with other projects, the overall result is cumulatively considerable. Certainly, a project's impacts may also be significant on both the incremental basis and the cumulative basis.

Not all cumulative impacts can be or need to be evaluated on the basis of both questions. In considering the criteria for evaluation of cumulative impacts in the context of a DEIR for a general plan, it is important to note the related comments in the CEQA Guidelines in that an incremental contribution to a significant cumulative impact (e.g., on a regional basis) may be rendered less than cumulatively considerable by a project's participation in a previously approved plan or mitigation program that addresses the cumulative issue.

A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans and programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. (CEQA Guidelines, 15064, subd. (h)(3))

Therefore, the determination of whether the project's impact on cumulative conditions is considerable is based on a number of factors including consideration of applicable public agency standards, consultation with public agencies, and expert opinion.

Section 5.0, Cumulative Impacts Summary, provides a summary of the cumulative impacts associated with the proposed General Plan that are addressed in the individual topic analyses in Section 4.0.

TERMINOLOGY USED IN THE DRAFT EIR

For clarification, the following terms used in this DEIR are explained as follows:

***Project*:** The project includes the update of the General Plan originally adopted in 2003. See Section 3.0, Project Description, for greater detail.

City of Orland General Plan Planning Area: The City's General Plan Update Planning Area encompasses 6.42 square miles (4,109+- acres) and extends outside of the city limits. The areas under Glenn County jurisdiction lying within the Planning Area are considered areas where the City expresses land use directions to help Glenn County determine policies related to the transition between the urban City areas and the agricultural and very low intensity uses under Glenn County jurisdiction.

Cumulatively Considerable: A cumulative significant impact would result when the project would contribute considerably to a significant physical impact on the environment expected under cumulative conditions.

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

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

Potentially Significant: A potentially significant impact is one that may or may not occur and where a definite determination cannot be made. Feasible mitigation measures and/or project alternatives are identified to avoid or reduce the project's effects on the environment to a less than significant level.

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

Standards of Significance: A set of significance criteria used by the CEQA lead agency (City of Orland) as well as by other public agencies with regulatory jurisdiction over the project to determine at what level or "threshold" an impact would be considered significant. Significance criteria used in this DEIR are derived from the following: the State CEQA Guidelines; factual or scientific information; regulatory performance standards of local, state, and federal agencies; and goals, policies, and programs of the proposed General Plan. Specified significance criteria are identified at the beginning of the impact analyses in each technical section of the DEIR.

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

REFERENCES

California Department of Finance (DOF). 2008. *E-5 Population and Housing Estimates, for Cities, Counties, and the State, 2001–2008.* August 2008. http://www.dof.ca.gov/HTML/DEMOGRAP/ReportsPapers/ReportsPapers.php

City of Orland. 2008. *Background Report for the General Plan Update*.

City of Orland Community Services Department. Personal communication with staff. December 2008.

U.S. Bureau of the Census. 2000. *2000 Census*. http://www.census.gov/

4.1 Aesthetics

This section describes the existing visual resources of the proposed Planning Area, summarizes its landscape characteristics, and discusses the impacts associated with implementation of the proposed General Plan. The analysis focuses on the anticipated alteration of the landscape characteristics and potential visual resource impacts in the proposed Planning Area. Key issues addressed in this section include alteration of existing visual character, degradation of scenic resources or views of scenic resources, and increased light and glare.

4.1.1 EXISTING SETTING

In general, the dominant visual features within the proposed Planning Area are the agricultural lands, rural character, urban downtown development, historical buildings, and various species of trees. Because the terrain is relatively flat, views of these resources are available from roadways throughout the proposed Planning Area. Views of the Sierra Nevada foothills and mountains and Coast Ranges are available, and the Sutter Buttes can be visible under clear conditions.

CITY LANDSCAPE

American settlement in the Orland area began in the 1840s, and the City of Orland was incorporated in 1909. Until the early 1870s, the area's largest industry was the raising of cattle and sheep. In the late 1800s grain production began to dominate county (and state) agriculture due to irrigation water from Stony Creek, which runs north of Orland and empties into the Sacramento River. The need to transport increasing amounts of grain taxed the capacity of the shippers on the Sacramento River, which lies approximately 11 miles to the east. The Central Pacific Railroad responded by laying a new line through Colusa County to Red Bluff. Originally, the City's development was influenced by the railroad, adjacent to which the downtown area was formed. Later, the construction of Highway 99 along the railroad tracks attracted commercial development along the highway corridor. Another commercial area then began to develop west-east along State Route 32. The most recently constructed major transportation corridor, Interstate 5 running north-south along the west boundary of the City, has attracted some new commercial development. Residential development then followed around these commercial areas. Housing styles vary and the variety of housing styles reflects the development of these residential areas over the years. The oldest remaining houses are Queen Anne cottages constructed around the turn of the last century, along with an architecturally diverse collection of housing from later periods.



As is the case in most towns in California, Orland is divided into several distinct areas, as indicated by its land use pattern. These areas include the downtown and its adjacent old neighborhoods, strip commercial development along both County Road 99W (Sixth Street) and East Walker Street (State Route 32), industrial development adjacent to the railroad tracks, and freeway-oriented commercial activities. Most of the older residential development has occurred in the eastern portion of the City, east of the railroad tracks. Newer residential development has occurred around the edges of the City, particularly in the northwest, northeast, and south.

Historic visual resources are important features of a community's history, providing a link between the visual landscape of the past and the urbanized landscape that characterizes the present. Examples of historic visual resources include buildings, structures, landmarks, monuments, and other visually prominent features. The most notable historic structure in Orland is the arch spanning North Sixth Street. The older houses in Orland contribute to the visual quality of the community. For additional discussion on historic resources within the proposed Planning Area, please refer to Section 4.5, Cultural Resources.

Interspersed throughout the City are open space areas such as parks, school grounds, and the local cemetery. Open space areas provide a visual break from the predominantly built environment with their lack of large structures and provision of relatively large areas of grass. Open space areas also allow for a variety of activities ranging from picnicking to organized sports programs. Orland's parks provide softball fields, baseball fields, soccer fields, basketball courts, horseshoe pits, lighted tennis courts, picnic tables, a children's playground, and a City swimming pool. Additionally, there are approved entitlements in various stages of development that, combined, contain an additional 22 acres of parkland for the residents of the City.

Outside of Orland's city limits, agricultural land represents the majority of land that is undeveloped within the Planning Area. Land uses within the undeveloped areas of the Planning Area include agricultural residential, agriculture, and grazing, and total approximately 1,270 acres.

AGRICULTURAL LAND

As stated previously, most of the land surrounding the City is agricultural land, which imparts a rural character to the area that many find aesthetically pleasing. Agricultural lands offer a break from the urban landscape by providing an open space visual resource, characterized by lack of structures. Generally, there is a distinctive boundary between the built-up urban area and the agricultural lands. The proposed Planning Area currently contains a variety of agricultural uses, primarily field crops, orchards, and grazing land for cattle. For a detailed description and analysis of agricultural resources within the proposed Planning Area, refer to Section 4.2, Agricultural Resources.

TREE RESOURCES

The proposed Planning Area contains many native tree types, such as valley oak, California black walnut, cottonwood, and willow. These trees propagate and grow under natural conditions along water channels. Non-native trees are also found in the proposed Planning Area, mostly planted for agricultural purposes or because of ornamental value, shade production, resistance to particular pests, or proven adaptation to the urban environment. There are no woodland corridors in the proposed Planning Area, except for the riparian woodland along Hambright Creek and Stony Creek, north of the city limits.

STONY CREEK

Stony Creek is the most significant natural scenic resource within the Planning Area. Historically, Stony Creek, adjacent to the Planning Area to the north, was a braided channel, which supported narrow strips of mature riparian vegetation. Current riparian vegetation along this stretch of Stony Creek extends intermittently along the creek, and the presence of mature riparian trees has decreased while invasive weed species have increased since dam construction by the U.S. Army Corps of Engineers (USACE). All of the land along Stony Creek within the Planning Area is privately owned. Private land uses generally include grazing, gravel

mining, agriculture, and rural residential uses. Lack of public ownership strictly limits public access and therefore opportunities for recreational activities.

The creek has been important in the City's history, as it served as a major irrigation source for agricultural development. The development of dams and irrigation canals for agricultural use was a major factor in the City's early development. Today, Stony Creek serves as a scenic resource, as it provides areas of open space within the City's Planning Area.

SCENIC VISTAS

Views of natural features, both near and distant, can add to the appeal of a city. Within the proposed Planning Area, the most prominent scenic vista is that of the eastern foothills of the Coast Range and the Black Butte Recreation Area, which are located approximately 10 miles to the west. On clear days, Mount Lassen and the Cascade and Sierra mountains and foothills to the east and northeast can be viewed from Orland. Stony Creek, described above, is the most significant natural scenic resource within the Planning Area of the City.

4.1.2 REGULATORY FRAMEWORK

STATE

Scenic Highway Program

California's Scenic Highway Program was created by the Legislature in 1963. Its purpose was to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. A scenic corridor is the land generally adjacent to and visible from the highway and is identified using a motorist's line of vision. A reasonable boundary is selected when the view extends to the distant horizon. There are currently no designated scenic highways within the proposed Planning Area.

4.1.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

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

1) A substantial adverse effect on a scenic vista.

2) Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

3) Substantial degradation of the existing visual character or quality of a site and its surroundings, or introduction of a feature that is out of character that dominates the view.

4) Creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

As discussed in the Notice of Preparation for the General Plan Environmental Impact Report (EIR) and according to the California Department of Transportation Scenic Highway Mapping System, there are no officially designated or eligible scenic highways in the City of Orland or within Glenn County. As a result, there will not be any further analysis of potential damage to scenic resources and historic buildings within a state scenic highway.

METHODOLOGY

The visual resource analysis is based on field visits of the proposed Planning Area, review of existing City documents, and review of the proposed land use map. For this visual analysis, the visual quality standards of the proposed General Plan were used for guidance. This analysis is based on anticipated changes within the proposed Planning Area from implementation of the proposed land use map.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Alteration of Existing Visual Character

Impact 4.1.1 Implementation of the proposed General Plan would result in the alteration of visual resources associated with the urban landscape within the proposed Planning Area. This is considered a **less than significant** impact.

The existing visual character of the City is a small-town feel divided into several distinct areas, as indicated by its land use pattern. These areas include the downtown and its adjacent old neighborhoods, strip commercial development along both County Road 99W (Sixth Street) and East Walker Street (State Route 32), industrial development adjacent to the railroad tracks, and freeway-oriented commercial activities. Most of the older residential development has occurred in the eastern portion of the City, east of the railroad tracks. Newer residential development has occurred around the edges of the City, particularly in the northwest, northeast, and south. Most of the land surrounding the City is agricultural, which imparts a rural character to the area that many find aesthetically pleasing. The implementation of the proposed General Plan would result in alterations to existing landscape characteristics of the City. Most notably, the existing urban area would expand into areas that are currently undeveloped or agricultural lands.

State Route 32 and County Road 99W are the principal corridors through the City of Orland. Additionally, Interstate 5 is a major transportation corridor and has attracted new commercial development. While these highways are not designated scenic routes, they serve as entrances from the south and east, as well as Orland's main street and commercial corridor. Since most travelers pass through the City on these highways, the proposed General Plan considers facilitating well-designed development along this corridor as key to establishing a desirable community image. The proposed General Plan would accommodate development and proposes policies that would have a direct effect on the views along the primary corridors.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Land Use: Policy 2.1.B, Program 2.1.B.1, Program 2.1.B.2, Policy 2.2.A, Program 2.2.A.1, Policy 2.3.A, Program 2.3.A.1, Program 2.3.A.2, Program 2.3.A.3, Policy 2.4.B, Program 2.4.B.1, Program 2.4.B.2, Policy 2.4.C, Program 2.4.C.1, Policy 2.4.D, Policy 2.5.B, Program 2.5.B.1, Program 2.5.B.2

Policy 2.1.B encourages the preservation and restoration of significant historic structures, and Program 2.1.B.1 seeks to develop and enact programs for rehabilitation and repair of existing residential, commercial, and industrial buildings. Program 2.1.B.2 is set forth to pursue additional

methods to remove or rehabilitate blighted and/or substandard buildings. Policy 2.2.A states that the City shall maintain defined boundaries and adequate buffers between agricultural land and urbanized areas, and Program 2.2.A.1 implements the Agricultural Buffer Guidelines that ensure the protection of agricultural operations adjacent to future urban development.

Policy 2.3.A provides for the development of tools and controls that enable the City to guide residential growth, improvements, and development which are implemented through Program 2.3.A.1, Program 2.3.A.2, and Program 2.3.A.3. Program 2.3.A.1 ensures the development and adoption of subdivision design guidelines, and Program 2.3.A.2 mandates development and adoption for standards for multi-family housing. Program 2.3.A.3 requires the use of site design techniques, landscaping, and buffers to minimize land use incompatibilities between land uses.

Policy 2.4.B seeks to actively work with existing commercial and industrial businesses to facilitate efforts to expand and enhance business in a manner that contributes to the high quality of life in Orland. Program 2.4.B.1 implements Design Guidelines for Commercial and Industrial Development and the Administrative Site Plan Review Process, while Program 2.4.B.2 states that the City shall ensure the integrity of residential neighborhoods is not compromised by new commercial uses. Policy 2.4.C encourages businesses that bolster and fortify the downtown, and Program 2.4.C.1 requires the City to review its zoning and land use regulations to identify and remove impediments to the establishment or expansion of downtown businesses where applicable.

Policy 2.4.D evaluates and applies the guidelines that provide for separate standards for each commercial area, including special planning areas, business parks, downtown, or other employment centers, that allow for a mixture of uses and development standards. Policy 2.5.B discourages development which results in the potential for land use incompatibility, specifically from objectionable land uses within residential neighborhoods, while associated Program 2.5.B.1 requires the City to periodically review the industrial and commercial land use designations. Program 2.5.B.2 requires that the City incorporate design buffers between potentially incompatible land uses.

The above policies and programs in the proposed Land Use Element are intended to maintain and enhance the overall existing visual character of the City, and to avoid the installation of structures or features that contrast with the character of the surrounding area. Implementation of the proposed General Plan policies and programs that address community design and land use would ensure that features associated with the older residential and commercial areas are applied to ensure that design standards are maintained with future residential, commercial, and industrial development. These features are designed to maintain the small-town character that most residents favor. Impacts after implementation of these policies and programs would be **less than significant**.

Mitigation Measures

None required.

Visual Characteristics – Special Planning Districts

Impact 4.1.2 Implementation of the proposed General Plan may result in changes in the visual character of the six identified Special Planning Districts. This is considered a **less than significant** impact.

The proposed General Plan focuses attention on the following Special Planning Districts which have been defined within the document as areas with major planning issues which may be developed during the term of the General Plan:

- Downtown District is the cultural, historic, and commercial core of the community and includes a substantial portion of Orland's businesses, public facilities, and historic structures. However, commercial uses in the downtown area have been in a state of decline during the past few decades and numerous buildings in the district are not occupied.

- Sixth Street District, or County Road 99, is the north-south arterial in Orland and provides access to commercial and industrial land uses, as well as to some residential uses. The Sixth Street District is mostly north-south oriented, with the middle portion of its eastern edge abutting the Downtown District and its southern edge abutting the Southwest Orland Special Plan Area. Like the Downtown District, commercial uses in this area have been in a state of decline over recent decades. Numerous buildings in the district are not occupied.

- Walker Street District, or State Route 32, presents a group of opportunities regarding how the City of Orland may best capitalize in this area. Community surveys identify a common desire to improve the corridor, in terms of aesthetics and commercial value. Caltrans and the City of Orland have established a desire to cooperate in moving toward mutually beneficial planning scenarios.

- Southwest Orland Special Plan Area consists of approximately 130 acres and is bounded by Interstate 5 on the west, Sixth Street (old Highway 99) on the east, South Street on the north, and County Road 18 on the south. Individuals and groups alike have voiced their interest in attracting industry to the area as well as a desire to prepare suitable locations for development to lure potential employment opportunities.

- Westside Freeway Special Plan Area is a commercially designated area adjacent to Interstate 5 and is underutilized. Even where infrastructure (i.e., cul-de-sacs with curb and gutter) has been extended for site improvements, individual parcels have not been developed.

- Northeast Orland Special Plan Area is defined as the area bounded on the west by the city limit boundary, on the east by the Sphere of Influence and Planning Area Boundary, to the south by State Route 32 (East Walker Street), and to the north by County Road 12. Vehicles traveling westbound experience this area when first entering Orland. In 2004, a group of developers approached the City with the concept of developing a Specific Plan for the northeast area of the City and City staff determined that it is likely that infrastructure is able to be extended to the Northeast Area.

The Special Planning Districts are overlay designations which portray uses the City would encourage. The Downtown, Sixth Street, and Walker Street Districts generally represent a significant amount of vacancy for commercial and industrial use and are in need of renovations and improvements. The Southwest Orland and Westside Freeway Special Plan Areas are both close to highway corridors and represent an opportunity to expand Orland's economic base by attracting industry to the area as well as by preparing suitable locations for development. As with the Southwest Orland and Westside Freeway Special Plan Areas, the Northeast Orland Special Plan Area is adjacent to a major transportation corridor, State Route 32 (East Walker Street). A proposal for development was brought to the City in 2004 by a group of developers

with the concept of developing a commercial center, mixed density residential development surrounding the commercial center, and a park to provide for recreational opportunities.

The proposed General Plan suggests that blanket or prescriptive zoning regulations that are not compatible with the density or design characteristics of these neighborhoods should be replaced with a special plan district that provides appropriate land use and design policies and criteria. Application of these policies and criteria could alter the character of existing special plan areas and districts to an extent and may improve the aesthetics of the area. For purposes of development, the base General Plan designation as depicted on **Figure 3.0-3** in Section 3.0, Project Description, and the parcel-specific zoning designation describe the appropriate uses.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Land Use: Policy 2.4.D

Policy 2.4.D evaluates and applies the guidelines adopted that provide for separate standards for each commercial area, including special planning areas, business parks, downtown, or other employment centers, that allow for a mixture of uses and development standards.

The proposed General Plan policy listed above is intended to enhance and improve the existing visual characteristics of the Downtown, Sixth Street, and Walker Street Districts, and of the Southwest Orland, Westside Freeway, and Northeast Orland Special Plan Areas. Implementation of Policy 2.4.D would improve the visual appearance of these areas while preserving their unique architectural and historic character. Impacts after implementation would be **less than significant**.

Mitigation Measures

None required.

Obstruction of Scenic Vistas

Impact 4.1.3 Implementation of the proposed General Plan may result in the obstruction of scenic vistas at the existing edges of urban development. This is considered a **less than significant** impact.

Noteworthy scenic vistas that can be seen from the City include Mount Lassen and the Cascade and Sierra mountains and foothills and the Coastal Range. However, it must be noted that these scenic vistas are views of distant scenic resources and a building of 35 or 45 feet in height would not necessarily block these views.

Residential, commercial, and industrial uses are subject to the height restrictions and design standards, as designated by the Orland Zoning Code. This code may be updated subsequent to adoption of the General Plan.

The placement of buildings within the viewshed of a scenic vista may obstruct views of that vista. However, much of the future residential, commercial, and industrial development would require discretionary approval by the City and therefore would be subject to environmental review. As part of this review, an analysis of impacts to a scenic vista is required.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Land Use: Policy 2.1.A, Program 2.1.A.1, Program 2.1.A.4, Policy 2.4.D

Policy 2.1.A ensures that development projects and other improvements conform to an overall plan for the community and that consideration is given to the configuration of adjacent areas to be developed in the future. Program 2.1.A.1 requires revisions to be prepared to the Orland Municipal Code which updates ordinances of the City to ensure consistency with the adopted General Plan. Program 2.1.A.4 ensures that development complies with the adopted design review process and Design Guidelines for all development types. Policy 2.4.D evaluates and applies the guidelines adopted that provide for separate standards for each commercial area, including special planning areas, business parks, downtown, or other employment centers, that allow for a mixture of uses and development standards.

The policies and programs defined above, as well as the requirement of environmental review for discretionary projects, would protect scenic vistas. This impact is considered to be **less than significant**.

Mitigation Measures

None required.

Glare or Lighting Affecting Day or Nighttime Views

Impact 4.1.4 Implementation of the proposed General Plan could result in the introduction of a substantial amount of glare or lighting sources, which could impact daytime or nighttime views on adjacent areas and land uses. This is considered a **less than significant** impact.

The main sources of daytime glare are generally sunlight reflecting from structures and other reflective surfaces and windows. Implementation of the proposed General Plan would introduce new sources of daytime glare into the City and increase the amount of daytime glare in existing developed areas. Proposed land uses in the updated General Plan consist of various densities of commercial, office, recreation, and other public uses. Such uses may utilize materials that produce glare. Daytime glare impacts would be most significant in areas adjacent to new development and to motorists traveling on roadways adjacent to new development.

Many of the streets within the Orland city limits have street lighting installed. These lights provide visibility for motorists, bicyclists, and pedestrians. They also provide security by making areas more visible at night, for both residents and police officers. Lighting is also provided throughout the proposed Planning Area at commercial centers, industrial sites, government offices, and institutional buildings. Many of these lights are installed in parking lots. At school sites, lights are turned on for athletic events, graduations, or other special programs.

Planned development and growth accommodated by the proposed General Plan would introduce new light sources into undeveloped portions of the City. New light sources would include, but not be limited to, new residential developments, street lighting, parking lot lights, and security-related lighting for non-residential uses. Nighttime lighting levels would increase substantially over current levels in undeveloped portions of the City and incrementally with future projects in developed areas. These new light sources could result in the indirect illumination (or "light spillover") into adjacent properties. Indirect illumination of adjacent residential properties would be an adverse impact, as the additional lighting would disturb residents. Another adverse

impact resulting from increased development would be "sky glow" conditions that reduce visibility of the nighttime sky.

The City's Zoning Ordinance requires that all parking lot lighting be deflected away from abutting residential areas (Section 17.76.100(J)(3)). Commercial and industrial exterior lighting is required to be designed to reflect away from adjacent residential uses or to the ground within the site property (Sections 17.36.060(D)(2), 17.40.060(C)(2), 17.44.050(D)(2), 17.48.050(D)(20), and 17.52.060(D)(2)).

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Land Use: Policy 2.3.A, Program 2.3.A.1, Program 2.3.A.2, Program 2.3.A.3, Policy 2.4.B, Program 2.4.B.1, Program 2.4.B.2

Policy 2.3.A provides for the development of tools and controls that enable the City to guide residential growth, improvements, and development, which are implemented through associated Program 2.3.A.1, which ensures the development and adoption of subdivision design guidelines, and Program 2.3.A.2, which requires the development and adoption of standards for multi-family housing. Furthermore, associated Program 2.3.A.3 uses site design techniques, landscaping, and buffers to minimize land use incompatibilities between land uses. Policy 2.4.B seeks to actively work with existing commercial and industrial businesses to facilitate efforts to expand and enhance business in a manner that contributes to the high quality of life in Orland, and associated Program 2.4.B.1 seeks the implementation of Design Guidelines for Commercial and Industrial Development and the Administrative Site Plan Review Process. Program 2.4.B.2 states that the City shall ensure the integrity of residential neighborhoods is not compromised by new commercial uses.

While these policies and programs may not specifically address glare and lighting, these mechanisms would be employed as part of the overall development review process of the City and will allow the City to monitor potential glare source and nighttime lighting levels. Additionally, lighting standards identified in the City's Zoning Ordinance assist in the reduction of light and glare impacts. Implementation of the proposed General Plan policies and programs would reduce glare and light spillover generated by new development. Impacts would be **less than significant**.

Mitigation Measures

None required.

4.1.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for visual resources includes the viewshed of existing, proposed, approved, and reasonably foreseeable developments in the Planning Area and surrounding areas of Glenn County. The Planning Area does not contain any scenic highways or scenic resource areas except Hambright and Stony creeks located north and outside of the city limits in the unincorporated area of Glenn County.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Impacts to Aesthetics and Light and Glare

Impact 4.1.5 Implementation of the proposed General Plan will encourage new development activities that could degrade the existing visual character or quality of the City. This impact is **less than cumulatively considerable**.

As noted under Impact 4.1.1 above, future growth in the City could have substantial impacts on the local landscape. New development could also be incremental in terms of cumulative regional impacts. The conversion of areas of the City from their current rural visual character to a more urban character could result in a cumulatively considerable change in the visual character of the City, as well as obstruct views and scenic vistas. Implementation of the proposed General Plan could result in a cumulatively considerable contribution to the overall urbanization of the region with corresponding visual impacts.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Implementation of the proposed General Plan's policies and programs identified under Impacts 4.1.1 through 4.1.4, as well as existing zoning regulations, would substantially reduce the alteration of visual character, obstruction of scenic vistas, and light/glare impacts within the City. As a result, cumulative impacts are considered to be **less than cumulatively considerable.**

Mitigation Measures

None Required.

REFERENCES

California Department of Transportation (Caltrans). 2008. Scenic Highway Mapping System.

City of Orland. August 2003 updated October 2007. *Zoning Ordinance (Title 17 of the Orland Municipal Code)*. Orland, CA.

City of Orland Community Services Department, Planning Division. 2008. *City of Orland Final Draft General Plan Update*. Orland, CA.

4.2 AGRICULTURAL RESOURCES

This section addresses agricultural lands and the potential impacts of the proposed General Plan on these lands. Key issues addressed in this section include conflicts with land use plans/policies, incompatibilities between land uses (including loss of community character and conflicts between urban and agricultural uses), loss of agricultural land, and consistency with Local Agency Formation Commission (LAFCo) policies (including orderly development).

4.2.1 EXISTING SETTING

Agriculture is the most extensive land use in Glenn County and the most significant component of the County's economy. Two-thirds of Glenn County's 1,317 square miles comprise agricultural croplands and pasture. Orland is surrounded by agricultural uses, which constitute a significant component of the local economy.



Agricultural operations within the General Plan Planning Area are primarily hobby farms, meaning that they provide supplemental rather that primary income. However, some primary farms do exist to the west, northeast, and northwest of the City. Orland's agricultural picture includes orchards of almonds, walnuts, olives, peaches, and prunes. Special climatic conditions allow orange groves to flourish in the Orland area – the northernmost citrus-growing area in the state. Fields of corn, wheat, rice, and beans surround the Orland community. Newer crops in production locally include kiwis and pistachios. Dairy farmers and woolgrowers are also present. Agriculture-related industries are prominent, including processing plants for nuts, sugar beets, olives, citrus, prunes, and dairy products. Also, several locations offer farm-fresh produce direct from the grower to the consumer (Glenn County Crop & Livestock Report, 2007).

Agricultural land also provides valuable open space and important wildlife habitat. It is important that the City take steps to preserve its agricultural land from both an economic and environmental perspective, as well as to preserve the historic agricultural quality of life that many in the Orland area enjoy.

IMPORTANT FARMLANDS

The California Department of Conservation, as part of its Farmland Mapping and Monitoring Program (FMMP), prepares Important Farmland Maps indicating the potential value of land for agricultural production. The Important Farmland Maps identify five agriculture-related categories:

- **Prime Farmland.** Prime Farmland is land with the best combination of physical and chemical features able to sustain the long-term production of agricultural crops. These lands have the soil quality, growing season, and moisture supply needed to produce sustained high yields. Prime Farmland must be used for production of irrigated crops at some time during the two updated cycles prior to the mapping date of 2002 (or since 1998).

- **Farmland of Statewide Importance.** Farmland of Statewide Importance is land similar to Prime Farmland, but with minor shortcomings, such as greater slopes or with less ability to

hold and store moisture. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date of 2002 (or since 1998).

- **Unique Farmland.** Unique Farmland is land of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards, as found in some climatic zones in California. The land must have been cultivated at some time during the two update cycles prior to the mapping date of 2002 (or since 1998).

- **Farmland of Local Importance.** Farmland of Local Importance is land of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee. Farmland of Local Importance in Glenn County includes lands which do not qualify as Prime, Statewide, or Unique farmland, but are currently irrigated crops or pasture or nonirrigated crops; lands that would meet the Prime or Statewide designation and have been improved for irrigation, but are now idle; and lands that currently support confined livestock, poultry operations, and aquaculture.

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

Figure 4.2-1 depicts the recent FMMP inventory of land within the Orland Planning Area, showing approximate locations of different categories of important farmland. The urbanized core of Orland is surrounded by Prime and Unique Farmland, as well as Farmland of Local and Statewide Importance. Government Code Section 56064 broadly defines land as "prime agricultural land" if it meets any of the following criteria:

a. Land that, if irrigated, qualifies for rating as Class I or Class II in the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service land use capability classification.

b. Land that qualifies for rating 80 through 100 Storie Index Rating.

c. Land that supports livestock used for the production of food and fiber that has an annual carrying capacity equivalent to at least one animal unit per acre.

d. Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return not less than $400 per acre from the production of unprocessed agricultural plant production on an annual basis.

Figure 4.2-1

Important Farmland FMMP

Planning Area

City Boundary

Prime Farmland

Statewide Importance

Unique Farmland

Local Importance

Grazing Land

0 0.25 0.5 Miles

UNION HIGH SCHOOL

GCOE BUTTE COLLEGE

OUWUA HEADQUARTERS

MILL STREET GRAMMER SCHOOL

GLENN COUNTY FAIRGROUNDS

CHAS. K. PRICE GRAMMER SCHOOL

FAIRVIEW GRAMMER SCHOOL

CITY CORPERATION YARD

LELY AQUATIC PARK

HAIGH FIELD

Hamilton Branch Canal

Hamright Creek

Stony Creek

Newville Res

UPRR

INTERSTATE 5

AGRICULTURAL BUFFERS



Urban encroachment into agricultural areas can restrict surrounding agricultural operations and result in the loss of additional productive soils if not properly monitored and controlled. The existing General Plan includes policies and implementation programs which facilitate, or in some cases require, agricultural lands to be protected from incompatible adjacent land uses. Incompatible adjacent land uses are those which tend to interfere or disrupt agricultural practices and may constrain agricultural activities over time. One of the protective methods mentioned by the existing General Plan is to insulate or buffer agricultural properties from adjacent incompatible land uses. A buffer is described as a strip of land or other design feature used to physically separate one conflicting use from another. Buffer zones are specifically intended to shield or obstruct noise, dust, lights, or other nuisances generated on one parcel and transmitted to another.

In September 2005, the City adopted the Administrative Guidelines for Implementation of General Plan Agricultural Buffering Policies. These buffering standards and guidelines provide a set of criteria and examples for buffering that will be used to incorporate appropriate buffering designs for various development projects. The guidelines will be used by City staff, applicants, the Planning Commission, and City Council in determining the general development characteristics and design features with which projects requiring buffers should comply.

Economics of Agriculture

Agriculture has a key role in the economy of California, the Central Valley, and the Sacramento Valley. According to a 2000 University of California study, agriculture accounts for 6.60 percent of total California income, 5.94 percent of the state's value added (sales minus cost of inputs), and 7.37 percent of jobs in California. In the Sacramento Valley, where the City of Orland is located, agricultural impacts are more significant: 8.17 percent of total income, 7.34 percent of value added, and 8.61 percent of the number of jobs.

According to *The Measure of California Agriculture*, published in 2003, a $1 billion increase in the value added results in a total of $1.9 billion of gross state product. Also, for every $1 billion increase in farm sales, there are 17,900 jobs created in California. Of these jobs created, 10,900 are in the farm sector and the remaining 7,000 are in other industries. Since the Sacramento Valley is more dependent on agriculture than California as a whole, changes in agricultural production and sales would have a greater economic impact. It also means that the conversion of agricultural lands to other uses would have a greater impact on the economy in the Sacramento Valley (including Orland) than in California overall.

AGRICULTURAL LAND

Outside of Orland's city limits, agricultural land represents the majority of undeveloped land within the Planning Area. All of this land is privately owned. Approximately 1,270 acres within the Planning Area is used as agricultural residential, agricultural, or grazing.

Agricultural Residential: The Planning Area has significant agricultural residences associated with the agricultural operations in the area.

Agriculture: Agriculture is by far the dominant land use in the Planning Area outside of Orland's city limits. Perennial and annual crops are grown. Agricultural fields are committed to perennial and annual crops, as well as to irrigated pasture.

Grazing: Irrigated and nonirrigated grazing pasture also occupies portions of the Planning Area outside Orland's city limits.

Agricultural land provides valuable open space and important wildlife habitat. It is important that the City take steps to preserve its agricultural land, from both an economic and an environmental perspective.

Existing Agricultural Operations

Of the 58 counties in California, Glenn County ranked 18th in agricultural production in 2007 (excluding timber values). Gross revenues from the sales of agricultural commodities that year were approximately $428,235,000. The leading farm commodities included almonds, rice, dairy, walnuts, prunes, olives, cattle, alfalfa hay, corn, and pistachios (**Table 4.2-1**) (USDA, National Agricultural Statistics Service, 2007).

TABLE 4.2-1
LEADING FARM COMMODITIES, GLENN COUNTY (2007)

Commodity	Value
Almonds	$109,918,000
Rice, Milling	$106,039,000
Dairy	$72,118,000
Walnuts, English	$42,628,000
Prunes	$26,031,000
Olives	$19,885,000
Cattle & Calves	$18,750,000
Hay, Alfalfa	$15,754,000
Corn	$10,278,000
Pistachios	$6,834,000

Source: USDA, National Agricultural Statistics Service, 2007

The proposed Planning Area contains lands with agricultural uses, including row crops, field crops, and orchards. Most of the agricultural lands are outside the city limits. Within the Orland Planning Area, agricultural lands are located along the edges of the City primarily to the east, south, and west.

Farmland Conversion

An issue of concern in California is the conversion of farmland, especially prime farmland, to non-agricultural land uses. The primary concern is the conversion of farmland to urban uses, such

as residential development. Once farmland is used for urban development, it is essentially lost as an agricultural resource. Farmland also may be converted for uses such as open space and habitat conservation.

One of the underlying premises of agricultural conversion is that the proximity of agricultural land to urban uses increases the market value of the agricultural land. This increase occurs either directly through formal purchase offers or indirectly through recent sales in the vicinity. It also occurs through the extension of utilities and other urban infrastructure into productive agricultural areas. Higher land values often encourage farmers to sell their land to developers, particularly as some agricultural operations become less viable economically.

Table 4.2-2 shows changes in the acreages of Important Farmland in Glenn County from 1998 to 2006. As shown in the table, there has been an increase in the acreage of Unique Farmland. This increase is due mainly to the incorporation of data from an updated NRCS soil survey. However, other categories of Important Farmland, as well as the total amount within the county, decreased from 1998 to 2006. This decrease equates to an average loss of approximately 60,705 acres of Important Farmlands annually, which includes land both in and out of production.

TABLE 4.2-2
ACRES OF IMPORTANT FARMLAND – GLENN COUNTY (1998–2006)

Year	Acres Present by Type[1]				
	Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Farmland of Local Importance	Total Important Farmlands
1998	168,217	88,648	11,073	140,078	**408,016**
2000	166,549	87,784	11,605	141,965	**407,903**
2002	163,628	88,891	16,539	77,613	**346, 671**
2004	162,670	88,374	16,589	78,721	**346,354**
2006	161,685	87,867	17,469	80,290	**347,311**
Net Acreage Changed	-6,532	-781	+6,396	-59,788	**-60,705**
Aver. Annual Percent Change	-0.49%	-0.11%	+7.22%	-5.34%	**-1.86%**

1 Due to the incorporation of updated digital soil survey data during the 2002 update, acreages for farmland may differ from those published in previous reports.
Source: DOC, 2003; DOC, 2005

4.2.2 REGULATORY FRAMEWORK

FEDERAL

Farmland Protection Policy Act

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

agencies, state and local governments, tribes, or nonprofit organizations that desire to develop farmland protection programs and policies.

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

Farmland Protection Program

NRCS administers the Farmland Protection Program (FPP), which is a voluntary program aimed at keeping productive farmland in agricultural uses. Under the FPP, NRCS provides matching funds to state, local, or tribal government entities and nonprofit organizations with existing farmland protection programs to purchase conservation easements. The goal of the program is to protect between 170,000 and 340,000 acres of farmland per year (NRCS, 2002). Participating landowners agree not to convert the land to non-agricultural use and retain all rights to use the property for agriculture. A conservation plan must be developed for all lands enrolled based upon the standards contained in the NRCS Field Office Technical Guide. A minimum of 30 years is required for conservation easements and priority is given to applications with perpetual easements. NRCS provides up to 50 percent of the fair market value of the easement being conserved (NRCS, 2008).

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

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

In Glenn County, the FPP is supplemented by the California Department of Conservation's (DOC's) Important Farmland Inventory System and Farmland Mapping and Monitoring Program, which is discussed in further detail under "State Regulatory Programs" below.

Land Evaluation and Site Assessment

The LESA system ranks lands for suitability and inclusion in the FPP. LESA evaluates several factors, including soil potential for agricultural use, location, market access, and adjacent land use. These factors are used to numerically rank the suitability of parcels based on local resource evaluation and site considerations (NRCS, 2002). The LESA system has spawned many variations, including the California LESA model, described below.

STATE

California Department of Conservation

The California Department of Conservation (DOC) administers and supports a number of programs, including the Williamson Act and Farmland Security Zones (FSZ), the California Farmland Conservancy Program (CFCP), the Williamson Act Easement Exchange Program (WAEEP), and the Farmland Mapping and Monitoring Program (FMMP). These programs are designed to preserve agricultural land and provide data on conversion of agricultural land to urban use. DOC has authority for the approval of agreements entered into under the WAEEP. The population of California is expected to grow from its current 34 million to 50 million by 2025 (DOC, 2008). This population growth and the need for new homes will put strain on the nation's leading agricultural economy. Key DOC tools available for land conservation planning are conservation easement grants, tax incentives to keep land in agriculture or open space, and farmland mapping and monitoring.

Important Farmland Inventory System and Farmland Mapping and Monitoring Program

The Important Farmland Inventory System initiated in 1975 by the U.S. Soil Conservation Service (now NRCS) classifies land based on 10 soil and climatic characteristics. The DOC system was designed to document how much agricultural land in California was being converted to non-agricultural land or transferred into Williamson Act and Farmland Security Zone contracts. The DOC started another similar system of mapping and monitoring for California in 1980, known as the Farmland Mapping and Monitoring Program.

The primary goal of this program was to assess the location, quality, and quantity of agricultural lands and their conversion to other uses over time. Currently, the FMMP maps both agricultural and urban land use on over 90 percent of the state's private lands. Reports are compiled every two years.

Agricultural and non-agricultural ground is divided into multiple categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Urban Built-Up Land.

- **Prime Farmland –** Land which has the best combination of physical and chemical characteristics for the production of crops. Qualities include optimal soil quality, growing season, and moisture to produce high-yielding crops.

- **Farmland of Statewide Importance –** Land that contains a good combination of physical and chemical characteristics that produce irrigated crops.

- **Unique Farmland –** Land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, yet still has the capability to produce high-valued crops. Examples of these crops include oranges, olives, avocados, rice, and grapes.

- **Farmland of Local Importance –** Land that has the capability of production or is used for the production of confined livestock. This land includes soils that may qualify for Prime Farmland or Farmland of Statewide Importance but which are not cultivated or irrigated.

- **Grazing Land –** Land on which existing vegetation is suitable for grazing or browsing of livestock. Does not include heavily brushed, timbered, excessively steep, or rocky lands.

- **Urban and Built-up Land –** Land used for residential, industrial, commercial, construction, institutional, public administrative purposes, railroad yards, landfills, sewage treatment plants, and other development purposes.

- **Other Land –** Land including rural residential development, brush, timber, wetlands, government lands not available for agricultural use, vacant and non-agricultural land surrounded by urban development, confined livestock/poultry/aquaculture facilities, mines, gravel pits, and many other rural land uses.

Land Evaluation and Site Assessment Model

The California LESA model was developed in 1997 and was designed based on the federal LESA system and can be used to rank the relative importance of farmland and the potential significance of its conversion on a site-by-site basis. The California LESA model considers the following factors: land capability, Storie index, water availability (drought and non-drought conditions), land uses within 1/4 mile, and "protected resource lands" (e.g., Williamson Act lands) surrounding the property. A score can be derived and used to determine if the conversion of a property would be significant under the California Environmental Quality Act (CEQA). The LESA model provides a broad range of scores and other factors that can be considered in determining impact significance.

Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, is the primary program for the conservation of agricultural lands in California. The Williamson Act creates an arrangement between the private landowner and the county to preserve agricultural lands. The Williamson Act is a voluntary program that helps reduce property tax rates for private lands enrolled in the program. The benefits of the Williamson Act provide an estimated 20 to 75 percent savings in property taxes annually (City of Orland Background Report, 2006).

The Williamson Act is only eligible to landowners within a designated agricultural preserve. A local government, such as a city or a county, establishes an agricultural preserve. In Glenn County, the Board of Supervisors establishes agricultural preserves. Agricultural preserves are regulated by strict rules to provide guidelines that ensure the land within the preserve is maintained for agricultural or open space use. As established by Glenn County Code Chapter 460, agricultural preserves are required to have a minimum site area of 36 acres for prime land and 144 acres for nonprime land. Contiguous neighbors may combine their properties to enter them into the Williamson Act. A minimum term for a Williamson Act contract is 10 years. A contract is renewed automatically each year. The Williamson Act contract is tied to the land and is transferred upon sale of the property. Compliance with the Williamson Act is enforced by the California Department of Conservation.

To remove land from the Williamson Act, a notice of nonrenewal must be established. During the nonrenewal process, the annual tax assessments increase by ten percent (10%) each year for ten (10) years. Once the 10-year nonrenewal period is complete, the Williamson Act contract is terminated. Another removal process is cancellation of the contract. Only the private landowner can petition to cancel a contract. The city or county must approve the contract cancellation. Cancellation requires an up-front payment of all back taxes.

Farmland Security Zone

In 1998, another option within the Williamson Act program was established to provide additional property tax incentives for agricultural properties. The Farmland Security Zone (FSZ) was created to provide additional tax incentives for property owners to protect agricultural lands. Lands restricted by a Farmland Security Zone contract is valued for property assessment purposes at 65 percent of its Williamson Act valuation or 65 percent of its Proposition 13 valuation, whichever one is lower (DOC, 2004).

An FSZ contract is nearly identical to a Williamson Act contract. FSZ contracts are established for a 20-year minimum term. Similar to a Williamson Act contract, these contracts renew annually unless a notice of nonrenewal is filed. Lands within a Farmland Security Zone are prohibited from being annexed into cities and special districts that provide non-agricultural services. School districts are also prohibited from acquiring FSZ lands for school facilities. For land to be eligible for the FSZ, the land must be designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance.

Williamson Act and Farmland Security Zone contracts are not intended to be cancelled. Cancellation is typically reserved for unusual, "emergency" situations. Therefore, the nonrenewal process has been identified as the legally preferred method for terminating a Williamson Act or Farmland Security Zone contract.

California Environmental Quality Act (CEQA) Definition of Agricultural Lands

Public Resources Code Section 21060.1 defines "agricultural land" as follows:

> *Agricultural land means prime farmland, farmland of statewide importance or unique farmland, as defined by the United States Department of Agriculture land inventory and monitoring criteria, as modified for California.*

This DEIR utilizes this definition for evaluating impacts associated with the loss of agricultural lands as a result of the project (General Plan Update).

4.2.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

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

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

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

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

METHODOLOGY

An analysis of agricultural impacts was derived from information from various sources. These included the California Department of Conservation Farmland Land Use Summaries, the California Department of Conservation Important Farmland Map of Glenn County, the Soil Survey of Glenn County prepared by the NRCS in 2005, and the Summary of County Agricultural Commissioners' Reports, 2006–2007 by the National Agricultural Statistics Service. Based on this information, the analysis assessed the potential value of agricultural lands in the proposed Planning Area and utilized the proposed Land Use Diagram to determine potential impacts.

The focus of this agricultural land use analysis is on land use impacts that would result from the new General Plan policy document and Land Use Map. Specific impacts and General Plan consistency issues associated with biological resources, visual resources, noise, traffic, public services/utilities, hydrology, and/or geology are addressed in each technical section of this Draft Environmental Impact Report (DEIR). The reader should refer to these other DEIR sections for detailed analyses of other relevant environmental effects resulting from development under the proposed General Plan.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Loss of Agricultural Land

Impact 4.2.1 Implementation of the proposed General Plan would result in the loss of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as designated under the Farmland Mapping and Monitoring Program. This is considered a **significant** impact.

Future development and associated public improvements allowed under the proposed City of Orland General Plan would result in the conversion of important farmland. According to the 2006 Glenn County Important Farmland Map, the proposed Planning Area contains approximately 1,328 acres of Prime Farmland, 566 acres of Unique Farmland, and 208.1 acres of Farmland of Statewide Importance. The Planning Area also contains approximately 1,042 acres of Farmland of Local Importance and 146 acres of Grazing Land. Prime Farmland is of particular importance, as this type of farmland requires the least amount of preparation to be a productive agricultural resource. Farmland of Statewide Importance is defined as farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Unique Farmland consists of lesser quality soils used for the production of the State's leading agricultural crops. These agricultural lands are located in the eastern portions of, and surrounding, the City limits. The proposed General Plan would permit residential and other development in these areas (upon annexation in the case of lands within the City Planning Area yet outside of the City limits). Once these agricultural lands are developed, they essentially are lost as an agricultural resource. Farmland of Local Importance is considered an important agricultural resource at the local level. Development under the proposed General Plan would result in the loss of this farmland as well.

Agricultural land is not identified as a use in the proposed General Plan. Implementation of the proposed General Plan is therefore assumed to result in a loss of approximately 1,328 acres of Prime Farmland, 566 acres of Unique Farmland, and 208.1 acres of Farmland of Statewide Importance located within the City's Planning Area that will be designated for other uses. The proposed General Plan would result in the loss of 1,042 acres of Farmland of Local Importance as well. Therefore, implementation of the proposed General Plan would result in the conversion of farmland, and this impact is considered significant.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Land Use: Goal 2.2, Policy 2.2.A, Program 2.2.A.1, Policy 2.2.B, Program 2.2.B.1, Program 2.2.B.2

Open Space: Goal 5.1, Policy 5.1.A, Policy 5.1.B, Policy 5.1.F, Program 5.1.F.1, Policy 5.1.G, Policy 5.1.H, Policy 5.1.I

Goal 2.2 states that the City strives to maintain a compact urban form and preserve agricultural land outside of the City within the Planning Area. Policy 2.2.A requires that adequate buffers shall be maintained between agricultural land and urbanized areas, and Program 2.2.A.1 states that the City will implement the Agricultural Buffer Guidelines where needed to ensure the protection of agricultural operations adjacent to future urban development along the city limits and when reviewing projects within the Sphere of Influence. Policy 2.2.B directs development toward existing neighborhoods by encouraging infill and redevelopment activity, with Program 2.2.B.1 providing programs or policies which reduce fees and streamline the development process for infill and redevelopment projects, and Program 2.2.B.2 reducing approval of incompatible uses on unincorporated land adjacent to the City by developing a comprehensive annexation program. The City adopted a comprehensive annexation policy on August 18, 2008.

Goal 5.1 promotes and protects the continued viability of agriculture surrounding Orland. Policy 5.1.A encourages the development and redevelopment of property within the city limits and Sphere of Influence prior to considering development outside of these areas. Policy 5.1.B directs urban development to areas where agricultural operations are already constrained by existing non-agricultural uses. Policy 5.1.F encourages the use of on-site density transfers, flexible zoning standards, and density averaging on sites with existing agricultural operations or agricultural processing operations, and Program 5.1.F.1 requires that the City review the existing zoning pattern to determine where the use of these provisions may be applicable or desirable. Policy 5.1.G refers all development requests adjacent to, or affecting, facilities owned and operated by the Orland Unit Water Users Association (OUWUA) for review and comment. Policy 5.1.H also requires the City to work with OUWUA and the federal Bureau of Reclamation to implement the application and guidelines for the undergrounding of the OUWUA irrigation canals within the City of Orland. Policy 5.1.I states that the City will work with Glenn County to identify and adopt City/County "Areas of Mutual Concern" to consider standard mitigation measures to reduce impacts of development on agricultural activities.

Mitigation Measures

MM 4.2.1 The following mitigation measure shall be included as a program under General Plan Policy 5.1.I:

The City shall review development projects to mitigate for conversion of Prime Farmland and Farmland of Statewide Importance as defined on the California Department of Conservation Important Farmland Map for Glenn County for parcels of 40 acres or larger in size as of the adoption date of this General Plan to urban uses: (1) granting a farmland conservation easement to or for the benefit of the City and/or a qualifying entity approved by the City, at a 1:1 ratio for each acre and quality developed, (2) if the City adopts a farmland conservation program, by payment of an in-lieu fee as established by the farmland conservation program, which shall be reviewed and adjusted periodically to ensure that the fee is adequate to offset the cost of purchasing farmland conservation easements at a 1:1 ratio, or (3) other

form of compensation at a 1:1 ratio, such as improvements to existing agricultural land, that is acceptable to the City and conserves the farmland in perpetuity. The City shall use minimum standard guidelines identifying requirements for conservation easements, including timing of conservation easements, location of land to be preserved, land mitigation ratio and quality, and minimum standards for conservation easements.

Implementation of mitigation measure **MM 4.2.1** would reduce the impact of the loss of important farmland by compensating for any loss due to development by protecting regional farmlands, in kind, from conversion to non-agricultural uses; however, not to a less than significant level. Therefore, this impact is considered **significant and unavoidable**.

Changes in Existing Land Uses Resulting in the Conversion of Agricultural Land

Impact 4.2.2 Implementation of the proposed General Plan could create conflicts between existing agricultural and future urban development within the proposed Planning Area and with land uses adjacent to the proposed Planning Area. This is considered a **significant** impact.

Under the proposed General Plan, urban development would be allowed to expand west, south, and northeast of the current city limits. As more urban development occurs outside the existing city limits, individual projects may be placed adjacent to lands designated for agricultural use, or agricultural operations, which could create conflicts between these land uses, both within the Planning Area and with agricultural uses adjacent to the Planning Area. Generally, residential uses generate the most conflicts with agricultural operations. Agriculture/urban conflicts vary depending on the type of agricultural use, but generally include, although are not limited to, the following:

- Inconveniences or discomforts associated with dust, smoke, noise, and odor from agricultural operations.
- Restrictions on agricultural operations (such as pesticide application) along interfaces with urban uses.
- Conflicts with farm equipment and vehicles using roadways.
- Trespassing and vandalism on active farmlands.
- Increased pressure to convert adjacent agricultural land to urban uses as a result of the above-mentioned conflicts and increases in property values.

Because of the inherent conflicts between agricultural and urban uses, new urban development may increase the potential for agricultural conversion to non-agricultural uses.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space: Policy 5.1.C, Program 5.1.C.1, Program 5.1.C.2, Program 5.1.C.3, Program 5.1.C.4, Program 5.1.C.5, Program 5.1.C.6, Policy 5.1.D, Policy 5.1.E

For other policies in the proposed General Plan that address noise-related standards, refer to Section 4.9, Noise of this DEIR.

Policy 5.1.C addresses the impacts of siting sensitive uses in areas where conflicts with agricultural production and processing activities may result during the project review process and may require buffers between the uses. Program 5.1.C.1 establishes that buffers shall be designed to avoid conflicts between agricultural and non-agricultural uses, which should ensure that the buffer does not host pests or carriers of disease which could impact farming operations. Program 5.1.C.2 ensures that buffers shall normally be located on the parcel proposed for non-agricultural use. Program 5.1.C.3 states that buffers should primarily consist of a physical separation between agricultural and non-agricultural uses, and that the appropriate width shall be determined on a site-by-site basis based on the existing physical features and project design that affect the specific situation. Program 5.1.C.4 includes, in addition to physical separation, that the following buffer options should be considered to most effectively reduce conflicts arising from adjacent incompatible uses: green belts/open space, park and recreation areas, roads, fences, walls, waterways, and vegetative screens/trees. Program 5.1.C.5 provides for an ongoing maintenance program for the buffer which may include vector controls, and Program 5.1.C.6 includes policies indicating that buffer restrictions may be removed if all adjacent parcels have been irreversibly converted to non-agricultural uses. Policy 5.1.D creates and maintains buffer zones around areas of existing agricultural processing activities and discourages sensitive uses that encroach upon these facilities. Policy 5.1.E states that buffer zones surrounding agricultural processing plants may vary in width based upon existing and proposed uses and as required by the City on a project-specific basis.

These policies and programs would reduce pressure on adjoining lands to convert to non-agricultural uses, and implementation of the proposed General Plan minimizes or avoids potential conflicts between land uses within the proposed Planning Area yet not at a level that is less than significant. Therefore, this impact is considered to be **significant and unavoidable.**

Mitigation Measures

None available.

Williamson Act Contracts

Impact 4.2.3 Implementation of the proposed General Plan could result in a conflict with existing Williamson Act contracts. This is considered a **less than significant** impact.

Pursuant to Government Code Section 51243, the City is required to provide for the exclusion of uses other than agricultural, and other than those compatible with agricultural uses, for the duration of a Williamson Act contract. If a city annexes land under Williamson Act contract, the city must secede to all rights, duties, and powers to the county unless conditions in Government Code Section 51243.5 apply, which give a city the option to not secede the contract. No Williamson Act contracts are located within the City boundary; however, there are three contracts within the Planning Area. Two of the Williamson Act contract parcels are located along the northern boundary of the Planning Area that are on non-prime agricultural land and are in nonrenewal. The third Williamson Act parcel, located in the northwestern corner of the Planning Area, is on prime agricultural land. Stony Creek runs through this parcel as well as through the northernmost corner of one of the parcels in nonrenewal. Hambright Creek runs along the southern portion of both the parcels in nonrenewal. Therefore, a large portion of these three Williamson Act parcels is located within the 100-year floodplain.

The City's General Plan does not identify agricultural land use designations; however, these parcels are located within the Open Space/Resource Conservation (OS/RC) land use

designation. The OS/RC designation is intended to provide public open space, to preserve and enhance the natural environment that contributes to the quality of life in and around Orland, and to make certain that growth does not adversely affect natural resources. The Williamson Act parcel that is located on Prime Farmland is located with the Planning Area boundary on the north and west, and is designated as OS/RC to the south and east. The two parcels in nonrenewal status are located with OS/RC to the west and east and Low Density Residential (R-L) to the south, with the Planning Area boundary to the north. There is potential that the area designated R-L to the south may allow for urban development, which may impede the ability for the adjacent landowner to farm the land according to the Williamson Act contract. However, these parcels are in the process for nonrenewal and will no longer be designated as Williamson Act contract lands in the future. Therefore, there will not be violations of these contracts. Potential conflicts associated within agricultural lands adjacent to lands to be developed are discussed under Impact 4.2.2.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space: Policy 5.1.C, Program 5.1.C.1, Program 5.1.C.2, Program 5.1.C.3, Program 5.1.C.4, Program 5.1.C.5, Program 5.1.C.6, Policy 5.1.D, Policy 5.1.E

Policy 5.1.C addresses the impacts of siting sensitive uses in areas where conflicts with agricultural production and processing activities may result during the project review process and may require buffers between the uses. Program 5.1.C.1 establishes that buffers shall be designed to avoid conflicts between agricultural and non-agricultural uses, which should ensure that the buffer does not host pests or carriers of disease which could impact farming operations. Program 5.1.C.2 ensures that buffers shall normally be located on the parcel proposed for non-agricultural use. Program 5.1.C.3 states that buffers should primarily consist of a physical separation between agricultural and non-agricultural uses, and that the appropriate width shall be determined by the City on a site-by-site basis based on the existing physical features and project design that affect the specific situation. Program 5.1.C.4 includes, in addition to physical separation, that the following buffer options should be considered to most effectively reduce conflicts arising from adjacent incompatible uses: green belts/open space, park and recreation areas, roads, fences, walls, waterways, and vegetative screens/trees. Program 5.1.C.5 provides for an ongoing maintenance program for the buffer which may include vector controls, and Program 5.1.C.6 includes policies indicating that buffer restrictions may be removed if all adjacent parcels have been irreversibly converted to non-agricultural uses. Policy 5.1.D creates and maintains buffer zones around areas of existing agricultural processing activities and discourages sensitive uses that encroach upon these facilities. Policy 5.1.E states that buffer zones surrounding agricultural processing plants may vary in width based upon existing and proposed uses as determined by the City.

As stated previously, there are no farmlands within the City boundary; however, there are three Williamson Act contract parcels located along the northern portion of the Planning Area. Implementation of the proposed General Plan policies and implementing actions would reduce the potential for conversion of Williamson Act contract farmlands within the Planning Area. Impacts after implementation would be **less than significant**.

Mitigation Measures

None required.

4.2.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for agricultural resources includes existing, approved, proposed, and reasonably foreseeable development within the Planning Area and Glenn County. The City and Glenn County contain Prime Farmland and Farmland of Local Importance. An issue of concern in California is the conversion of farmland, especially Prime Farmland, to non-agricultural land uses. The primary concern is the conversion of farmland to urban uses, such as residential development. Once farmland is used for urban development, it is essentially lost as an agricultural resource. Since the Sacramento Valley is more dependent on agriculture than California as a whole, changes in agricultural production and sales would have a greater economic impact. It also means that the conversion of agricultural lands to other uses would have a greater impact on the economy in the Sacramento Valley (including Orland) than in California overall. Under cumulative conditions, agricultural land will continue to be converted to urban uses as the population increases in Glenn County and the Sacramento Valley.

CUMULATIVE IMPACTS TO AGRICULTURAL RESOURCES

Cumulative Impacts to Agricultural Resources

Impact 4.2.4 Implementation of the proposed General Plan, in addition to existing, proposed, approved, and reasonably foreseeable development in Glenn County, would contribute to cumulative land conflicts. This would be a **cumulatively considerable** impact.

As discussed throughout this section, subsequent land use activities associated with implementation of the proposed General Plan could result in the conversion of, and/or conflict with, agricultural resources in the City. Under cumulative conditions, the proposed General Plan and subsequent development would not contribute to significant impacts associated with land use conflicts beyond those discussed in Impact 4.2.2 and Impact 4.2.3. Land use conflicts, particularly those between urban and agricultural resources, that would occur under cumulative development conditions would also be site-specific. However, as discussed in Impact 4.2.1, General Plan policies and programs listed previously would not reduce the loss of agricultural land to a less than significant level. While mitigation measure **MM 4.2.1** would preserve agricultural lands, it is not known whether these lands would be preserved within the local region. As a result, the proposed General Plan would result in a cumulative direct loss of agricultural land within the area. Implementation of the General Plan would contribute substantially to farmland conversion in the region and is a cumulatively considerable and significant and unavoidable consequence of the intensification of development proposed in the General Plan.

Mitigation Measures

Implementation of proposed General Plan policies, programs, and the mitigation measure described under Impacts 4.2.1 through 4.2.3 would reduce the proposed General Plan's contribution to cumulative impacts to agricultural resources. However, implementation of the General Plan Land Use Diagram would still contribute incrementally to substantial cumulative impacts on agricultural resources in the region as a result of urban development. This impact is **cumulatively considerable** and is considered a **significant and unavoidable** impact.

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4.3 Air Quality

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential air quality impacts of the implementation of subsequent land use activities under the proposed Orland General Plan. The DEIR examines the climatic influences that affect the air quality of the proposed Planning Area and also describes available data on measured contaminant levels. In addition, it outlines the regulatory agencies, planning agencies, and programs relevant to the proposed Planning Area. Key issues addressed in this section include emission of criteria pollutants associated with new development, including construction, operational, and related traffic, and exposure to toxic air contaminants. Information for this section was obtained primarily from the California Air Resources Board, the Glenn County Air Pollution Control District, and from associated public documents that describe air quality conditions. Refer to Section 5.0, Cumulative Impact Summary, for a discussion of global climate change and greenhouse gas emissions.

4.3.1 EXISTING SETTING

AIR BASIN CHARACTERISTICS

The City is located within the Northern Sacramento Valley Air Basin (NSVAB), which includes the Sacramento Valley and is bounded by the coastal ranges to the west and the Sierra Nevada to the east (**Figure 4.3-1**). The entire air basin is about 200 miles long in a north-south direction and has a maximum width of about 150 miles, although the valley floor averages only about 50 miles in width.

The environmental conditions of Glenn County are conducive to potentially adverse air quality conditions. The basin area traps pollutants between two mountain ranges to the east and the west. This problem is exacerbated by a temperature inversion layer that traps air at lower levels below an overlying layer of warmer air. Prevailing winds in the area are from the south and southwest. Sea breezes flow over the San Francisco Bay Area and into the Sacramento Valley, transporting pollutants from the large urban areas. Growth and urbanization in Glenn County have also contributed to an increase in emissions.

CLIMATE

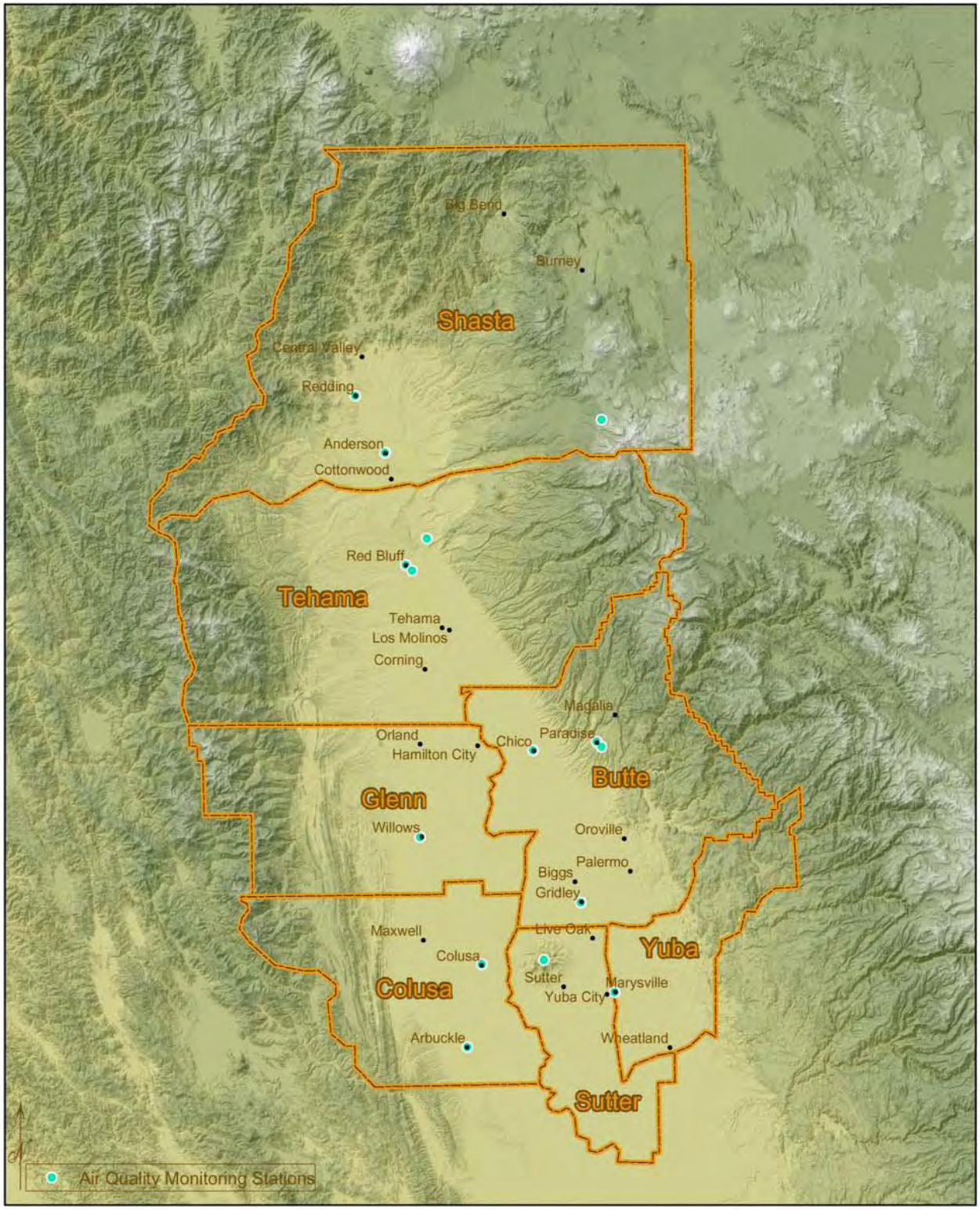
The climate of the Orland Planning Area is characterized by hot, dry summers and cool, wet winters. During the summer months from mid-April to mid-October, significant precipitation is unlikely and temperatures range from daily maximums approaching 100 degrees Fahrenheit to evening lows in the high 50s and low 60s. Winter conditions are characterized by occasional rainstorms interspersed with stagnant and sometimes foggy weather. Winter daytime temperatures average in the low 50s and nighttime temperatures average in the upper 30s.

AMBIENT AIR QUALITY STANDARDS

Both the U. S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants that represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. USEPA criteria pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO_2 – a form of NO_X), sulfur dioxide (SO_2 – a form of SO_X), particulate matter both 10 microns and 2.5 microns in size and smaller (PM_{10} and $PM_{2.5}$), and lead. CARB has established state standards for USEPA's criteria pollutants, as well as for other pollutants. The

federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. State standards, which are entirely health-based, are more stringent. This is particularly true for ozone and particulate matter.

FIGURE 4.3-1
NORTHERN SACRAMENTO VALLEY AIR BASIN



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The State of California regularly reviews scientific literature regarding the health effects of pollutants. On May 3, 2002, CARB staff recommended lowering the level of the annual standard for PM10 and establishing a new annual standard for PM2.5 (particulate matter 2.5 micrometers in diameter and smaller). The new standards became effective on July 5, 2003, with another revision on November 29, 2005. In addition to these criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation, and monitoring of TACs is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TACs are regulated on the basis of risk rather than specification of safe levels of contamination.

Table 4.3-1 summarizes the federal and California ambient air quality standards for important pollutants.

TABLE 4.3-1
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour 8-Hour	 0.075 ppm	0.09 ppm 0.070 ppm
Carbon Monoxide	8-Hour 1-Hour	9.0 ppm 35.0 ppm	9.0 ppm 20.0 ppm
Nitrogen Dioxide	Annual 1-Hour	0.053 ppm --	0.030 0.18 ppm
Sulfur Dioxide	Annual 24-Hour 1-Hour	0.03 ppm 0.14 ppm --	-- 0.04 ppm 0.25 ppm
PM_{10}	Annual 24-Hour	 150 ug/m^3	20 ug/m^3 50 ug/m^3
$PM_{2.5}$	Annual 24-Hour	15 ug/m^3 35 ug/m^3	12 ug/m^3 --
Lead	30-Day Avg. 3-Month Avg.	-- 1.5 ug/m^3	1.5 ug/m^3 --
Sulfates	24-hour	No Federal Standards	25 µg/m3
Hydrogen Sulfide	1-hour		0.03 ppm (42 µg/m3)
Vinyl Chloride	24-hour		0.01 ppm (26 µg/m3)
Visibility-Reducing Particle Matter	8-hour		Extinction coefficient of 0.23 per kilometer —visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.

Source: CARB, 2008a
Notes: ppm = parts per million, ug/m3 = micrograms per cubic meter

AMBIENT AIR QUALITY

Ambient air quality in the Planning Area can be inferred from ambient air quality measurements conducted at air quality monitoring stations. The Glenn County Air Pollution Control District (GCAPCD) has two monitoring stations in Willows that record levels of various pollutants. There is no air quality monitoring station located in Orland. **Table 4.3-2** summarizes the last three years of published ambient air quality data obtained from the air quality monitoring stations in GCAPCD's monitoring area. As depicted in **Table 4.3-2**, there are several recorded instances during the last three years of available data of an exceedance of state or federal standards. The exceedances were for state standards for PM_{10} occurring over 18.3 days in 2005 and three days 2006, as well as state standards for ozone (8 hour), which occurred over one day in 2005 and three days 2007.

TABLE 4.3-2
SUMMARY OF AMBIENT AIR QUALITY DATA, 2005–2007

Monitoring Station and Measurements	2005	2006	2007
Ozone (1 hour)			
Willows – East Laurel Street			
Maximum concentration (ppm)	0.077	0.076	Not Available
Number of days state standard exceeded	0	0	
Number of days federal standard exceeded	0	0	
Willows – 720 North Colusa Street			
Maximum concentration (ppm)	Not Available	0.088	0.091
Number of days state standard exceeded		0	0
Number of days federal standard exceeded		0	0
Ozone (8 hour)			
Willows – East Laurel Street			
Maximum concentration (ppm)	0.070	0.066	Not Available
Number of days state standard exceeded	1	0	
Number of days federal standard exceeded	0	0	
Willows – 720 North Colusa Street			
Maximum concentration (ppm)	Not Available	0.070	0.078
Number of days state standard exceeded		0	3
Number of days federal standard exceeded		0	0
Particulate Matter (PM_{10})			
Willows – East Laurel Street			
Maximum daily concentration (national/state, $\mu g/m^3$)	67.0/69.0	78.0/77.0	Not Available
Number of days state standard exceeded	18.3	2	
Number of days federal standard exceeded	0	0	
Willows – 720 North Colusa Street			
Maximum daily concentration (national/state, $\mu g/m^3$)	Not Available	62.0/64.0	43.0/43.0
Number of days state standard exceeded		1	0
Number of days federal standard exceeded		0	0
Fine Particulate Matter ($PM_{2.5}$)			
Willows – East Laurel Street			
Maximum 24-hour concentration (national/state, $\mu g/m^3$)	45.1	–/30	Not Available
Number of days federal standard exceeded	--	--	
Willows – 720 North Colusa Street			
Maximum 24-hour concentration (national/state, $\mu g/m^3$)	Not Available	–/59.1	50.6
Number of days federal (1-hr/8-hr) standard exceeded		--	--

Source: CARB, 2008b
$\mu g/m^3$ - micrograms per cubic meter, ppm - parts per million

SENSITIVE RECEPTORS

The term "sensitive receptors" refers to specific population groups, as well as the land uses where they reside for long periods of time. Commonly identified sensitive population groups are children, the elderly, and the acutely and chronically ill. Commonly identified sensitive land uses are residences, schools, playgrounds, childcare centers, retirement homes or convalescent homes, hospitals, and clinics. The major sensitive receptors in Orland are schools and residences.

AIR POLLUTANTS OF CONCERN AND HEALTH EFFECTS

Pollutants subject to federal ambient air quality standards are referred to as criteria pollutants, because USEPA publishes criteria documents to justify the choice of standards. Criteria air pollutants, common emissions sources, and associated effects are summarized in **Table 4.3-3**.

TABLE 4.3-3
CRITERIA AIR POLLUTANTS – SUMMARY OF COMMON SOURCES AND EFFECTS

Pollutant	Description	Sources	Health Effects	Welfare Effects
Carbon Monoxide	Colorless, odorless gas	Motor vehicle exhaust, indoor sources include kerosene wood-burning stoves	Headaches, reduced mental alertness, heart attack, cardiovascular diseases, impaired fetal development, death.	Contribute to the formation of smog
Sulfur Dioxide	Colorless gas that dissolves in water vapor to form acid, and interacts with other gases and particulates in the air	Coal-fired power plants, petroleum refineries, manufacture of sulfuric acid and smelting of ores containing sulfur	Eye irritation, wheezing, chest tightness, shortness of breath, lung damage	Contribute to the formation of acid rain, visibility impairment, plant and water damage, aesthetic building damage
Nitrogen Dioxide	Reddish brown, highly reactive gas	Motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels	Susceptibility to respiratory infections, irritation of the lung and respiratory symptoms (e.g., cough, chest pain, difficulty breathing)	Contribute to the formation of smog, acid rain, water quality deterioration, global warming, and visibility impairment
Ozone	Gaseous pollutant when it is formed in the troposphere	Vehicle exhaust and certain other fumes. Formed from the combination of reactive organic gases and oxides of nitrogen in the presence of sunlight	Eye and throat irritation, coughing, respiratory tract problems, asthma, lung damage	Plant and ecosystem damage
Lead	Metallic element	Metal refineries, lead smelters, battery manufacturers, iron and steel producers and use of leaded fuels by racing and	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ	Affects animal and plants, affects aquatic ecosystems

Pollutant	Description	Sources	Health Effects	Welfare Effects
		aircraft industries		
Particulate Matter	Very small particles of dust, soot, or other matter, including tiny droplets of liquids	Diesel engines, power plants, industries, windblown dust, wood stoves.	Eye irritation, asthma, bronchitis, lung damage, cancer, heavy metal poisoning, cardiovascular effects.	Visibility impairment, atmospheric deposition, aesthetic building damage, impaired plant photosynthesis.

Source: USEPA, 2008

The most problematic pollutants in Orland are ozone and particulate matter. The health effects and major sources of these pollutants are described below. Toxic air pollutants are a separate class of pollutants and are discussed later in this section.

Attainment Status for Criteria Air Pollutants

Both the federal and state clean air laws require the identification and designation of areas that either do or do not meet ambient air quality standards. An attainment designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A nonattainment designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation(s) was caused by an exceptional event, as defined in the criteria. Areas for which there is insufficient data available are designated unclassified.

Under the federal Clean Air Act, Glenn County, which includes Orland, has been designated attainment or unclassified for all national ambient air quality standards. Under the California Clean Air Act, the region is designated nonattainment for the California ambient air quality standard for particulate matter (PM_{10}) and nonattainment-transitional for ozone.

Ozone

Ozone is not emitted directly into the air; rather, it is formed through a complex series of chemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO_x). These reactions occur over time in the presence of sunlight and heat. Ground-level ozone, commonly referred to as smog, is greatest on warm, windless, sunny days. Ozone is a public health concern because it is a respiratory irritant that increases susceptibility to respiratory infections and diseases, and because it can harm lung tissue at high concentrations. In addition, ozone can cause substantial damage to leaf tissues of crops and natural vegetation, and it can damage many natural and manmade materials by acting as a chemical oxidizing agent. The principal sources of the ozone precursors (ROG and NO_x) are the combustion of fuels and the evaporation of solvents, paints, and fuels.

Particulate Matter (PM)

Particulates are solid or liquid particles, including smoke, dust, aerosols, and metallic oxides, that are small enough to remain suspended in the air for a long period of time. Particulate matter can be divided into several size fractions. Coarse particles are between 2.5 and 10 microns in diameter and arise primarily from natural processes such as wind-blown dust or soil. Fine particles are less than 2.5 microns in diameter and are produced mostly from combustion or burning activities. Fuel burned in cars and trucks, power plants, factories, fireplaces, and wood stoves

produces fine particulate matter. Particulate matter resulting from the burning of wood in fireplaces and wood stoves is of particular concern.

Toxic Air Contaminants

Other emissions of concern are grouped under the term toxic air contaminants. TACs are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects. They include both organic and inorganic chemical substances, and they may be emitted from a variety of common sources. These include gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. Chemical and biological research facilities are also sources of TACs. TACs are regulated separately from the criteria air pollutants at both federal and state levels.

CARB works in partnership with the local air districts to enforce regulations that reduce emissions of TACs throughout the state. CARB identifies the TACs, researches prevention or reduction methods, adopts standards for control, and enforces the standards. CARB has designated almost 200 compounds as TACs, including benzene, formaldehyde, and perchloroethylene. Particulate matter emissions from diesel-fueled vehicles and engines are the primary TACs of concern for mobile sources. Of all controlled TACs, diesel-exhaust particulate matter emissions are estimated to be responsible for about 70 percent of the total ambient TAC risk. CARB has made the reduction of the public's exposure to diesel-exhaust particulate matter one of its highest priorities, with an aggressive plan to require cleaner diesel fuel and cleaner diesel engines and vehicles (CARB, 2005).

According to GCAPCD, there are approximately 19 TAC sources in the Orland area. Each of these sources is regulated by GCAPCD, which issues permits and requires conformance with applicable regulations. The local air districts have the authority over stationary or industrial sources. All projects that require air quality permits from GCAPCD are evaluated for TAC emissions. GCAPCD limits emissions and public exposure to TACs through a number of programs. GCAPCD prioritizes TAC-emitting stationary sources, based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. GCAPCD requires a comprehensive health risk assessment for facilities that are classified in the significant-risk category, pursuant to Assembly Bill 2588.

Diesel Exhaust/Land Use Issues

In 1998, after a 10-year scientific assessment process, the California Air Resources Board identified particulate matter from diesel-fueled engines as a toxic air contaminant. Unlike criteria pollutants like carbon monoxide, TACs do not have ambient air quality standards. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. Two types of risk are usually assessed: chronic non-cancer risk and acute non-cancer risk. Diesel particulate has been identified as a carcinogenic material but is not considered to have acute cancer risks. The state has begun a program of identifying and reducing risks associated with particulate matter emissions from diesel-fueled vehicles. In September 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce diesel PM emissions and the associated health risk by 75 percent in 2010 and 85 percent by 2020. The plan consists of new regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles, new retrofit requirements for existing on-road, off-road, and stationary diesel-fueled engines and vehicles, and new diesel fuel regulations to reduce the sulfur content of diesel fuel

as required by advanced diesel emission control systems. Land uses where individuals could be exposed to high levels of diesel exhaust include:

- Warehouses
- Schools with high volume of bus traffic
- High volume highways
- High volume arterials and local roadways with high level of diesel traffic

Orland public schools include seven elementary, middle, and high schools. These schools have substantial volumes of bus traffic during daily morning and afternoon operations, which contribute to diesel emissions in the City. High volume roadways in Orland include East Walker Street (Highway 32) and Sixth Street which has a high volume of daily truck traffic. Trucks are considered major sources of diesel-related emissions.

Odors

Objectionable odors may be associated with a variety of pollutants and operations. Odors rarely have direct health impacts, but they can be very unpleasant and can lead to concern over possible health effects among the public.

4.3.2 REGULATORY FRAMEWORK

Air quality within the Northern Sacramento Valley Air Basin, which includes the City of Orland, is regulated by several jurisdictions, including the U.S. Environmental Protection Agency, California Air Resources Board, and Glenn County APCD. Each of these agencies develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. Although USEPA regulations may not be superseded, both state and local regulations may be more stringent.

FEDERAL

Federal Clean Air Act

The federal Clean Air Act was signed into law in 1970. Congress substantially amended the Clean Air Act in 1977 and again in 1990. The Clean Air Act requires USEPA to establish National Ambient Air Quality Standards and to set deadlines for their attainment. Two types of air quality standards have been established: primary standards that protect public health and secondary standards that protect public welfare from non-health-related adverse effects such as visibility restrictions. These standards identify maximum levels for six criteria pollutants, which are considered the maximum levels of background air pollutants considered safe, with an adequate margin of safety. The six criteria pollutants include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and particulate matter 10 microns in size and smaller (PM_{10}). Recently, USEPA established ambient air quality standards for particulate matter 2.5 microns in size or smaller ($PM_{2.5}$, or fine particulate matter).

STATE

California Clean Air Act

The California Clean Air Act of 1988 requires that all air districts in the state endeavor to achieve and maintain California Ambient Air Quality Standards for the criteria pollutants listed in the

federal Clean Air Act. In addition, it establishes air quality standards for other pollutants: sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particle matter. In many cases, the state standards are more stringent than the federal standards. The California Clean Air Act specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a 5 percent annual reduction, averaged over consecutive three-year periods, in district-wide emissions of each nonattainment pollutant or its precursors, or (2) provide for implementation of all feasible measures to reduce emissions.

The California Air Resources Board, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both state and federal air pollution control programs within the state. In this capacity, CARB conducts research, sets state air quality standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as aerosols, paints, and barbecues), and commercial equipment. CARB also sets fuel specifications to further reduce vehicular emissions.

Tanner Air Toxics Act

California regulates toxic air contaminants primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). AB 1807, enacted in 1983, established a two-step process of risk identification and risk management to address the potential health effects from toxic air substances. The first step is identification of a substance as a toxic air contaminant. CARB and the Office of Environmental Health Hazard Assessment participate in this step. In the second step, CARB reviews the emission sources of an identified TAC to determine if regulatory action is necessary to reduce the risk. In 1993, AB 1807 was amended to require the identification of 189 federal hazardous air pollutants as TACs.

AB 2588, enacted in 1987, established the air toxics "Hot Spots" program. This program requires facilities to report their air toxics emissions, to ascertain health risks, and to notify nearby residents of significant risks. In 1992, AB 2588 was amended to require facilities that pose a significant health risk to the community to reduce risk through a risk management plan.

Senate Bill 656

In 2003 the California Legislature enacted Senate Bill 656 to reduce public exposure to PM_{10} and $PM_{2.5}$. This legislation required all air districts to review a list of PM control measures compiled by CARB and identify measures that are most appropriate to the region. SB 656 requires CARB to prepare a report by 2009 that describes actions taken to fulfill the requirements of the legislation as well as recommendations for further actions to assist in achieving the state PM standards.

LOCAL

Glenn County Air Pollution Control District

Within Glenn County, the air quality regulating authority is the Glenn County APCD. GCAPCD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs, and it regulates agricultural burning. Other responsibilities include monitoring air quality, preparing clean air plans, and responding to citizen complaints concerning air quality.

Air Quality Attainment Plan

In 1994, the air districts within the NSVAB, including GCAPCD, prepared an Air Quality Attainment Plan for ozone and PM_{10}. This plan was updated in 1997, 2000, 2003, and again in 2006. Like the preceding plans, the 2006 plan focuses on the adoption and implementation of control measures for stationary sources, area-wide sources, indirect sources, and public information and education programs. The 2006 plan also addresses the effect that pollutant transport has on the NSVAB's ability to meet and attain the state standards.

The 2006 plan contains eighteen feasible control measures designed to reduce ozone emissions, in compliance with the goals of California's State Implementation Plan (SIP) for ozone. GCAPCD has adopted nine of those measures.

4.3.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, air quality impacts are considered to be significant if the following could result from the implementation of the proposed General Plan:

1) Conflict with or obstruct implementation of any applicable air quality plan.

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

3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

4) Expose sensitive receptors to substantial pollutant concentrations.

5) Create objectionable odors affecting a substantial number of people.

Refer to Section 5.0, Cumulative Impact Summary, for a discussion of global climate change and greenhouse gas emissions.

METHODOLOGY

The air quality analysis for this DEIR is based on land use designations identified in the proposed General Plan Land Use Element and the projected traffic and residential, commercial, office, and industrial uses. Increases in regional criteria air pollutants were calculated using the Urbemis 2007 (v9.2.4) computer program (see **Table 4.3-4** and **Table 4.3-5**). The Urbemis emission report is included in **Appendix B**. This program estimates criteria pollutants from area and mobile emission sources associated with development projects, based on the specific types of land uses proposed for development. Use of this model for large community-based plans, where specific land uses have not yet been identified, may not fully account for site-specific conditions but has been used to provide a reasonable estimation of emissions based on typical land use development conditions under the proposed General Plan.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Consistency with the NSVAB Air Quality Attainment Plan

Impact 4.3.1 Subsequent land use activities associated with implementation of the proposed General Plan could result in emissions greater than the standards identified by the Northern Sacramento Valley Planning Area 2006 Air Quality Attainment Plan. This impact is considered to be **less than significant**.

As identified in the setting discussion, the Orland region is designated nonattainment for the California ambient air quality standard for PM_{10} and nonattainment-transitional for ozone. In 1994, the air districts within the NSVAB, including GCAPCD, prepared an Air Quality Attainment Plan for ozone and PM_{10}. This plan was updated in 1997, 2000, 2003, and again in 2006. Like the preceding plans, the 2006 plan focuses on the adoption and implementation of control measures for stationary sources, area-wide sources, indirect sources, and public information and education programs. The 2006 plan also addresses the effect that pollutant transport has on the NSVAB's ability to meet and attain the state standards. The 2006 plan contains eighteen feasible control measures designed to reduce ozone emissions, in compliance with the goals of California's State Implementation Plan (SIP) for ozone. GCAPCD has adopted nine of those measures.

The City's land use authority in planning, zoning, and permitting can be a very effective tool to minimize air pollutant emissions and associated health risks. The change in existing land use designations may or may not, depending on the change, conflict with the local air quality attainment plan. For instance, if subsequent land use activities associated with implementation of the proposed General Plan result in the increase of stationary or mobile pollutant emissions above those analyzed in the air quality attainment plan, the proposed General Plan may be in conflict with the attainment plan and result in an environmental impact according to CEQA standards of significance. Generally, an increase in the amount of acreage or density for residential land use designations results in the increase of the potential population of a jurisdiction. Expansion of the City's Planning Area under the proposed General Plan would result in a projected 2028 population of approximately 12,286 persons, an increase of 4,933 persons over the existing population.

The Northern Sacramento Valley Planning Area 2006 Air Quality Attainment Plan and its reduction predictions and mitigations are based in part on the regional population. For example, the exposure computations of the Air Quality Attainment Plan are based on census data collected by the federal government. For the years from 1985 to 1999, the population statistics are based on the 1990 census. For the years 2000 through 2005, population data from the 2000 census was used. The difference in population, housing units, and employment in the City between existing conditions and anticipated year 2028 conditions may result in an exceedance of the data used to formulate the Northern Sacramento Valley Planning Area 2006 Air Quality Attainment Plan and its criteria pollutant reduction predictions and mitigations. However, the Northern Sacramento Valley Planning Area Air Quality Attainment Plan is required to be updated every three years. The Attainment Plan states that one reason for this requirement is to update the growth rates of population, industry, and vehicle related emissions. Therefore, the incremental population growth experienced in the Orland Planning Area as a result of the proposed General Plan would be accounted into the Attainment Plan on a triennial basis, thus maintaining consistency between the population assumptions of the Northern Sacramento Valley Planning Area Air Quality Attainment Plan and the actual population of Orland.

The proposed changes to land use designations and incremental population increases anticipated by the proposed General Plan would not result in conflicts with the Northern Sacramento Valley Planning Area 2006 Air Quality Attainment Plan or result in the delayed attainment of air quality standards for the Glenn County APCD area.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, & Public Facilities: Policy 5.4.B

Policy 5.4.B ensures that the City will work with the Glenn County Air Pollution Control District in efforts to maintain air quality standards and to minimize air quality impacts associated with new development. This proposed General Plan policy would assist in the improvement of air quality conditions. Subsequent land use activities associated with implementation of the proposed General Plan would not allow for growth that is not anticipated in the Northern Sacramento Valley Planning Area Air Quality Attainment Plan. As such, the proposed General Plan would not conflict with the Attainment Plan. Thus, this impact is considered **less than significant.**

Mitigation Measures

None required.

Short-Term Emissions from Grading and Construction

Impact 4.3.2 Subsequent land use activities associated with implementation of the proposed General Plan may result in short-term emissions generated by construction and demolition activities that would affect local air quality and could result in health and nuisance-type impacts in the immediate vicinity of individual construction sites as well as contribute to particulate matter and regional ozone impacts. This is considered a **significant** impact to air quality.

Construction and demolition emissions are generally short-term or temporary in duration; however, they still have the potential to significantly impact air quality. The main contributors to this short-term adverse impact to air quality are fugitive dust emissions (PM_{10}), for which Glenn County is in nonattainment for the California ambient air quality standard, and emission of ozone-forming gases ROG and NO_x. Fugitive dust emissions are generally associated with grading, movement of soil, and other site preparation activities. ROG and NO_x emissions break down to form ozone and are associated primarily with gas and diesel equipment exhaust and the application of various exterior building coatings. Glenn County has been designated nonattainment-transitional for the California ambient ozone standard.

Expansion of the City's Planning Area under the proposed General Plan would result in a projected 2028 population of approximately 12,286 persons, an increase of 4,933 persons over the existing population. This development, along with the supporting infrastructure, would generate increased emissions of ROG, NO_x, and PM_{10}. Construction activities would include grading, building demolition, building construction, and paving. Wind erosion and disturbance to exposed areas would also be sources of dust emissions. In addition, motor vehicle exhaust associated with construction equipment and construction personnel commuter trips, and material transport and delivery, would contribute to the generation of ROG, NO_x, and PM_{10}.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, & Public Facilities: Policy 5.4.B

Policy 5.4.B ensures that the City will work with the Glenn County Air Pollution Control District in efforts to maintain air quality standards and to minimize air quality impacts associated with new development.

Mitigation Measures

MM 4.3.2 The following mitigation measure shall be added as a new program under Policy 5.4.B of the proposed General Plan:

> The City shall require that individual development projects are analyzed as part of project review in accordance with Glenn County Air Pollution Control District-recommended methodologies and significance thresholds and shall require that all recommended mitigation measures are incorporated to reduce short-term construction emissions attributable to individual development projects.

Implementation of the above proposed General Plan policy and mitigation measure would reduce potential construction-related air quality impacts. However, these actions would not fully offset air pollutant emissions resulting from construction activities. Thus, this impact is considered **significant and unavoidable**.

Operational Air Pollutants

Impact 4.3.3 Negative air quality impacts associated with long-term emissions from projected growth over the planning horizon of the proposed General Plan may result in violations of ambient air quality standards. This is considered a **significant** impact.

Subsequent land use activities associated with implementation of the proposed General Plan may result in an increase in population. This increase would introduce additional mobile and stationary sources of emissions, which would adversely affect regional air quality. Glenn County, which includes the Planning Area, is designated nonattainment for the California PM_{10} standard. Principal sources of PM_{10} include fuel burned in cars and trucks, power plants, factories, fireplaces, agricultural activities, and wood stoves. Implementation of the proposed General Plan would result in increased regional emissions of PM_{10} as well as ROG, NO_x, and CO due to increased use of motor vehicles, natural gas, burning activities, maintenance equipment, and various consumer products, thereby increasing potential operational air quality impacts.

Increases in operational air impacts with implementation of the proposed General Plan would generally consist of two sources: stationary and mobile.

- A stationary source of air pollution refers to an emission source that does not move (e.g., utilities facilities). Often, stationary sources are defined as large emitters that release relatively consistent qualities and quantities of pollutants. The term "area source" is used to describe the many smaller stationary sources located together whose individual emissions may be low, but whose collective emissions can be significant. Typically, area sources are those that emit less than 25 tons per year of any combination of hazardous air pollutants or less than 10 tons per year of any single hazardous air pollutant.

- A mobile source of air pollution refers to a source that is capable of moving under its own power. In general, mobile sources imply on-road transportation, but there is also a non-

road or off-road category that includes gas-powered lawn tools and mowers, farm and construction equipment, recreational vehicles, boats, planes, and trains.

An increasing population produces increases in services that can intensify stationary source air emissions. Implementation of the proposed General Plan would result in an increase in population and operational air pollution impacts beyond present-day levels. While a portion of the operational impacts are related to stationary sources, as discussed below, the highest increases of PM_{10} are anticipated to come from mobile (vehicles) sources.

An Urbemis 2007 (Version 9.2.4) analysis was completed to illustrate the maximum daily area source and operational emissions emitted in 2008. **Table 4.3-4** contains estimated maximum daily emissions based on existing development.

TABLE 4.3-4
ESTIMATED UNMITIGATED AIR QUALITY EMISSIONS, EXISTING CONDITIONS

Total Emissions						
Emission Source	Tons Per Year			Pounds Per Day		
	ROG	NOx	PM_{10}	ROG	NOx	PM_{10}
Existing 2008 Conditions						
Stationary Source Emissions	58.15	28.20	14.63	273.67	145.51	0.55
Operational (vehicle) Emissions	328.60	397.64	503.70	1,850.91	1,869.82	2,760.09
Total Emissions (Existing)	**386.75**	**425.84**	**518.33**	**2,124.58**	**2,015.33**	**2,760.64**

Notes: 1) Glenn County APCD does not provide EMFAC statistics for use with the Urbemis 2007 air emissions program. Sacramento County Air Quality Management District EMFAC statistics were used. Actual emissions will vary depending on how development occurs, the specific types of land uses developed, and emission control measures implemented.
2) The commercial land use traffic Trip Generation Rate is based on the median for all commercial and retail categories identified in the Urbemis 2007 ver 9.2.4 model.
3) The industrial land use Trip Generation Rate is based on the median for all industrial categories identified in the Urbemis 2007 ver 9.2.4 model.
4) The school/daycare land uses Trip Generation Rate is based on the median for all school and daycare categories identified in the Urbemis 2007 ver 9.2.4 model.
5) The commercial and industrial building space is based on the Floor Area Ratio (FAR) identified in the City of Orland Zoning Code for each land use category. Church, school, and daycare building space is based on the commercial FARs.

Expansion of the City's Planning Area under the proposed General Plan would result in a projected 2028 population of approximately 12,286 persons, an increase of 4,933 persons over the existing population. **Table 4.3-5** illustrates the estimated highest-case scenario, unmitigated air quality emissions under the proposed General Plan. This table depicts the operational emissions profile to potential future emissions at 2028 assuming the high annual growth rate of 2.6 percent. It should be noted that these emissions estimates do not include other anticipated sources, including continued agricultural operations and activities.

TABLE 4.3-5
ESTIMATED 2028 UNMITIGATED PROPOSED GENERAL PLAN AIR QUALITY EMISSIONS

Proposed General Plan Lifespan Total Projected Annual Emissions Assuming 2.6 Percent Growth Rate						
Emission Source	Tons Per Year			Pounds Per Day		
	ROG	NOx	PM_{10}	ROG	NOx	PM_{10}
Stationary Source Emissions	89.54	38.87	24.52	414.94	197.84	.081
Operational (vehicle) Emissions	480.17	589.51	746.81	2,687.68	2,772.01	4,092.17
Total Emissions	**569.71**	**628.38**	**771.33**	**3,102.62**	**2,969.85**	**4,092.98**

Notes: 1) Glenn County APCD does not provide EMFAC statistics for use with the Urbemis 2007 air emissions program. Sacramento County Air Quality Management District EMFAC statistics were used. Actual emissions will vary depending on how development occurs, the specific types of land uses developed, and emission control measures implemented.
2) The commercial land use traffic Trip Generation Rate is based on the median for all commercial and retail categories identified in the Urbemis 2007 ver 9.2.4 model.
3) The industrial land use Trip Generation Rate is based on the median for all industrial categories identified in the Urbemis 2007 ver 9.2.4 model.
4) The school/daycare land uses Trip Generation Rate is based on the median for all school and daycare categories identified in the Urbemis 2007 ver 9.2.4 model.
5) The commercial and industrial building space is based on the Floor Area Ratio (FAR) identified in the City of Orland Zoning Code for each land use category. Church, school, and daycare building space is based on the commercial FARs.
6) 2008 acreage ratios of the separate residential types (i.e., single-family, multi-family, etc.) was calculated and maintained to calculate the projected 2028 acreage ratios of separate residential types.

Based on the expected 2.6 percent high growth rate, which represents a highest-case scenario, potential emissions resulting from this growth scenario are estimated to be 569.71 tons of ROG, 628.38 tons of NO_x, and 771.33 tons of PM_{10} per year through the year 2028. These projections are only estimates and are not based on actual development in the City over the next 20 years, as it is not possible to determine what development may occur this time. However, the air emission analysis does identify that a result of development is an increase in air emissions (**Tables 4.3-4** and **4.3-5**). The increase in potential air pollutant emission sources in the City has the possibility to result in continued exceedance of state air quality thresholds. In addition, agricultural and resource extraction uses in the City's Planning Area would also contribute to these emissions.

Motor vehicles are a major source of emissions within the Planning Area. Subsequent land use activities associated with implementation of the proposed General Plan are projected to increase the City population, which will increase area traffic. Congested intersections, due to increased traffic, lower average speeds, and increased idling times, lead to an increase in local carbon monoxide concentrations. CO emissions are expected to decrease per vehicle-mile traveled due to cleaner burning fuels and improved technology. However, an increase in the number of vehicles may work to offset any improvements in CO concentrations. Currently the City is located in a region that is considered to have an unclassified designation for CO by the state (CARB designates an area as unclassified for a pollutant if it finds that the data do not support a designation of attainment or nonattainment). However, considering that the entire State of California is in attainment with CO standards, which includes areas with a much greater population than the population projected to result from the proposed General Plan, it can be assumed that federal and state CO standards would not be exceeded. Therefore the proposed General Plan would not contribute to substantial amounts of CO emissions.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, & Public Facilities: Policy 5.4.B

Circulation: Policy 3.3.C, Program 3.3.C.1, Program 3.6.A.1, Policy 3.6.B, Program 3.6.B.1, Policy 3.6.C, Policy 3.7.A, Policy 3.7.B, Policy 3.7.D. Policy 3.8.A, Policy 3.8.B, Program 3.8.B.1, Policy 3.8.C

Policy 5.4.B ensures that the City will work with the Glenn County Air Pollution Control District in efforts to maintain air quality standards and to minimize air quality impacts associated with new development. Policy 3.3.C and associated Program 3.3.C.1 ensure the installation of traffic control devices at intersections, as needed, in order to reduce traffic congestion at key intersections throughout the City. Such measures will reduce the air quality-related impacts resulting from congested intersections, lower average speeds, and increased idling times (i.e., increase in local carbon monoxide concentrations and other emissions). Program 3.6.A.1 provides for bus pull-outs and transit stops at locations determined by the City and transit agency to be appropriate, while Policy 3.6.C ensures coordination with regional transit planners to determine the feasibility of developing and/or improving commuter bus service. Policy 3.6.B and Program 3.6.B.1 encourage the use of carpooling, vanpooling, and flexible employment hours for employees in the City. Improved bus service and expanded carpooling and vanpooling options will lead to less dependence on the single-occupant automobile driver within the City, thus reducing air pollutant emissions. Policies 3.7.A, 3.7.B, and 3.7.D, as well as Policy 3.8.A, Policy 3.8.B, Program 3.8.B.1, and Policy 3.8.C, strive to improve pedestrian and bicycle pathways by connecting major destinations in Orland, which will also encourage alternative forms of transportation and reduce dependency on automobiles, thus reducing air quality impacts.

Mitigation Measures

MM 4.3.3a The following mitigation measure shall be added as a new policy under Goal 5.4 of the proposed General Plan:

All new discretionary projects shall be evaluated to determine potential significant project-specific air quality impacts and shall be required to incorporate appropriate design, construction, and operational features to reduce emissions of criteria pollutants regulated by the state and federal governments below the applicable significance standard(s) or implement alternate and equally effective mitigation strategies consistent with Glenn County Air Pollution Control District air quality improvement programs to reduce emissions.

MM 4.3.3b The following mitigation measure shall be added as a new policy under Goal 5.4 of the proposed General Plan:

The City shall prohibit wood-burning open masonry fireplaces in all new development. Fireplaces with EPA-approved inserts, EPA-approved stoves, and fireplaces burning natural gas will be allowed.

Implementation of proposed General Plan policies and programs described above and mitigation measures **MM 4.3.3a** and **MM 4.3.3b** would reduce potential mobile and stationary source air quality impacts. While the proposed policies, programs, and mitigation measures would assist in reducing the stationary and mobile air quality impacts generated by subsequent land use activities associated with implementation of the proposed General Plan, it would not offset these pollution increases. For these reasons, the impact is considered **significant and unavoidable**.

Exposure to Toxic Air Contaminants

Impact 4.3.4 Subsequent land use activities associated with implementation of the proposed General Plan may result in projects that would include sources of toxic air contaminants which may affect surrounding land uses and/or place sensitive land uses near existing sources of toxic air contaminants. This impact is considered **significant**.

Subsequent land use activities associated with implementation of the proposed General Plan could potentially include land uses that are potential sources of toxic air contaminants. The type and level of TACs are dependent on the nature of the land use, individual facilities, and the methods and operations of particular facilities. **Table 4.3-6** below displays potential sources of TAC emissions for various land uses that could potentially be implemented under the proposed General Plan. Diesel exhaust particulate was recently added to the California Air Resources Board list of TACs. Activities involving long-term use of diesel-powered equipment and heavy-duty trucks contribute significantly to TAC levels.

TABLE 4.3-6
TOXIC AIR EMISSION BY LAND USE

Land Use	Toxic Air Emission
Auto Body Shop	Benzene, Toluene, Xylene
Auto Machine Shop	Asbestos
Chemical Manufacturing	Ethylene, Dichloride, Asbestos
Dry Cleaner	Perchloroethylene
Electrical Manufacturing	Polychlorinated Biphenyls (PCBs), Cadmium, Chromium, Nickel
Gasoline Station	Benzene, Methyl-Tertitary Butyl Ether (MTBE)
Hospital	Dioxin, Cadmium, Ethylene Oxide
Medical Equipment Sterilization	Ethylene Oxide
Printing Services	Ethyl Benzene, Ethylene Glycol, Xylene
Wastewater Treatment	Benzene, Carbon Tetrachloride, Ethylene Dichloride, Chloroform

Stationary Sources

Direct emissions are released from stationary sources, usually industrial in nature. Because of the great variation in emissions types and amounts from different industrial uses, it is not possible to predict direct emissions. The Glenn County APCD has statutory authority over stationary sources of emissions. GCAPCD issues permits to ensure that all equipment and processes comply with federal and state laws and regulations and district rules. Before a stationary source is built, erected, or operated, a permit to do so must be obtained from GCAPCD. Air quality permits are, in effect, a contract between the GCAPCD and stationary sources that sets limits on emissions and requires compliance with all GCAPCD, state, and federal regulations in order to protect public health. The District's rules and regulations impose limits on emissions and require the use of Best Available Control Technology (BACT) for sources exceeding certain emission levels. These regulations include the identification and quantification of emissions of toxic air contaminants and, if warranted, estimation of cancer and non-cancer risk associated with any source. The

permitting process was instigated to assist the controlling of air pollutants by stationary sources and is intended to ensure that these air emissions do not harm public health.

The issuance of Glenn County APCD air quality permits, compliance with all district, state, and federal regulations regarding stationary source TACs, and the use of Best Available Control Technology reduce potential stationary source toxic air emissions. Therefore, the proposed General Plan's potential stationary source TAC impacts are considered **less than significant**.

Mobile Sources

Mobile sources of TAC emissions in Glenn County, which encompasses the Planning Area, are primarily associated with the operation of school buses and diesel-powered delivery trucks associated with roadways and commercial, retail, and industrial uses.

Emissions from school buses can vary depending on various factors, including bus type, age, and maintenance, and the amount of time spent idling. Health impacts from exhaust exposure include eye and respiratory irritation, enhanced respiratory allergic reactions, asthma exacerbation, increased cancer risk, and immune system degradation. Generally, children are more vulnerable to air pollutants because of their higher inhalation rates, narrower airways, and less mature immune systems.

In response to the above issue, CARB adopted an Airborne Toxics Control Measure (ATCM) to specifically deal with diesel emissions from school buses. This measure became effective July 16, 2003. The school bus–idling ATCM includes the following requirements:

a) The driver of a school bus or vehicle, transit bus, or heavy-duty vehicle (other than a bus) shall manually turn off the bus or vehicle upon arriving at a school and shall restart no more than 30 seconds before departing. A driver of a school bus or vehicle shall be subject to the same requirement when operating within 100 feet of a school and shall be prohibited from idling more than five minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or heavy-duty vehicle (other than a bus) shall be prohibited from idling more than five minutes at each stop within 100 feet of a school. Idling necessary for health, safety, or operational concerns shall be exempt from these restrictions.

b) The motor carrier of the affected bus or vehicle shall ensure that drivers are informed of the idling requirements, track complaints and enforcement actions, and keep track of driver education and tracking activities.

According to CARB, implementation of the above requirements would eliminate unnecessary idling for school buses and other heavy-duty vehicles, thus reducing localized exposure to TAC emissions and other harmful air pollution emissions at and near schools and protecting children from unhealthy exhaust emissions.

In addition to the school bus–idling ATCM, CARB adopted an idling-restriction ATCM for large commercial diesel-powered vehicles that became effective February 1, 2005. In accordance with this measure, affected vehicles are required to limit idling to no longer than 5 minutes under most circumstances. CARB is currently evaluating additional ATCMs intended to further reduce TACs associated with commercial operations, including a similar requirement to limit idling of smaller diesel-powered commercial vehicles. However, these provisions do not address diesel emissions for truck traffic along roadways in the City.

While these measures will reduce the amount of TACs associated with diesel–powered vehicles, determination of the potential air quality impacts due to the emission of TACs by commercial diesel-powered trucks cannot be ascertained given the scope of land use changes with implementation of the proposed General Plan and the uncertainty of future development types. As a result, exposure of sensitive receptors to mobile-source TACs would be considered a **potentially significant** impact.

Short-term Construction Sources

Implementation of the proposed General Plan would result in the potential construction of a variety of projects. This construction would result in short-term emissions of diesel exhaust from on-site heavy duty equipment. Particulate exhaust emissions from diesel-fueled engines (diesel PM) were identified as a TAC by CARB in 1998. Construction would result in the generation of diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). The use of construction equipment would be temporary in nature.

Airports

There are two publicly owned airports in Glenn County: Haigh Field, located near Orland, and the Willows-Glenn Airport. Most aircraft are privately owned, small, single- or twin-engine planes flown primarily for personal business.

Sources of airport-related TAC emissions include aircraft (e.g., air carriers, commuter and cargo aircraft, and general aviation), ground-service equipment, fuel storage and handling, and other sources. TACs released by these sources include but are not limited to volatile organic compounds (acetaldehyde, formaldehyde, benzene, and 1, 3-butadiene), chromium, dioxins, polycyclic organic compounds (PAHs), tetrachloroethylene, nickel, and toluene.

Studies conducted for Chicago's O'Hare International Airport identified that the cancer risks associated with operations at the airport exceed 10 in 1 million over an area of approximately 40 square miles and 1 in 1 million over an area of approximately 1,000 square miles, assuming 70 years of exposure (KM Chng Environmental, 1999). Additionally, in 2000, the Illinois EPA monitored TAC emissions in the vicinity of O'Hare Airport as well as other locations in the Chicago area from June to December, focusing on toxic compounds identified in EPA's national strategy and on mobile-source emissions associated with airport operations. A review and analysis of the accumulated monitoring results found that the levels of toxic compounds (e.g., acetaldehyde and formaldehyde) attributable to airport operations were detected at monitoring sites. However, the concentrations of such compounds were indistinguishable from (or lower than) typical urban background levels.

Based on the above discussion, it can be ascertained that larger airports have the potential to expose sensitive receptors to TAC emissions to an extent that health risks could result. However, the airports found within the Orland region are considerably smaller in size compared to O'Hare International Airport. Therefore, this impact is considered **less than significant**.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, & Public Facilities: Policy 5.4.B

Policy 5.4.B ensures that the City will work with the Glenn County Air Pollution Control District in efforts to maintain air quality standards and to minimize air quality impacts associated with new development.

Mitigation Measure

MM 4.3.4 The following mitigation measure shall be added as a new policy under Goal 5.4 of the proposed General Plan:

> The City shall strive to minimize the exposure of sensitive uses, such as residences, schools, day care facilities, group homes, or medical facilities to industrial uses, transportation facilities, or other sources of state-regulated air toxics through the planning review process.

Implementation of proposed General Plan Policy 5.4.B and mitigation measure **MM 4.3.4** would reduce potential stationary, mobile, and construction source TAC impacts. However, these actions would not fully offset TAC source emissions or exposure from mobile sources from roadways. Thus, this impact is considered **significant and unavoidable**.

Odors

Impact 4.3.5 Subsequent land use activities associated with implementation of the proposed General Plan could include sources that would expose sensitive receptors to construction and long-term odorous emissions. This impact is considered **less than significant**.

Subsequent land use activities associated with implementation of the proposed General Plan could allow for the development of uses that have the potential to produce odorous emissions either during the construction or operation of future development. Additionally, subsequent land use activities may allow for the construction of sensitive land uses (i.e., residential development, schools, parks, offices, etc.) near existing or future sources of odorous emissions.

Future construction activities could result in odorous emissions from diesel exhaust associated with construction equipment. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, exposure of these emissions to sensitive receptors would be limited.

Glenn County APCD has adopted a nuisance rule that addresses the exposure of "nuisance or annoyance" air contaminant discharges. The Glenn County APCD Rule Book, Article IV, Section 78, states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or that endanger the comfort, repose, health, or safety of any such persons, or the public, or that cause a natural tendency to cause injury or damage to business or property (GCAPCD, 1999). The provisions of Article IV, Section 78 do not apply to odors emanating from agricultural operations necessary for the growing of crops or raising of fowl or animals. If public complaints are sufficient to cause the odor source to be considered a public nuisance, then GCAPCD can require the identified source to incorporate mitigation measures to correct the nuisance condition.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, & Public Facilities: Policy 5.4.A

Policy 5.4.A ensures that the City will work to minimize adverse affects of odor and emissions generated by agricultural and industrial uses during the project review process.

Implementation of the proposed General Plan policy listed above would require the protection of sensitive receptors from incompatible land uses. Therefore, this impact is considered **less than significant**.

Mitigation Measures

None required.

4.3.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for air quality includes existing, approved, proposed, and reasonably foreseeable development within the Northern Sacramento Valley Air Basin (NSVAB), which is a seven-county region. Glenn County, which includes the City of Orland, is one of two counties in the NSVAB that are in nonattainment status of state standards for ozone. Glenn and Colusa counties are in "nonattainment-transitional" status. Butte, Yuba, and Sutter counties are in nonattainment status for federal 1-hour ozone standards, while Butte County and southern Sutter County are in nonattainment status for the federal 8-hour ozone standard. All other counties are in attainment or unclassified status for the federal ozone standards.

All of the seven counties in the NSVAB are in nonattainment status for state standards for PM_{10}. All counties in the NSVAB are in unclassified status for federal PM_{10} standards. All counties also are in unclassified status for state $PM_{2.5}$ standards except for Butte County, which is in nonattainment status. The entire NSVAB is in attainment or unclassified status for all other federal and state criteria pollutants. Because the timing of attainment status for the NSVAB is unknown, the cumulative setting for air quality assumes nonattainment status of ozone and PM_{10}.

The air districts in the NSVAB have adopted the 2006 Air Quality Attainment Plan. This plan was developed for the purpose of achieving and maintaining healthful air quality throughout the air basin. Like the previous attainment plans, the 2006 plan focused on the adoption and implementation of control measures for stationary sources, area-wide sources, and indirect sources, and addressed public education and information programs. The 2006 plan also addressed the effect that pollutant transport has on the NSVAB's ability to meet and attain the state standards.

Ozone trends are variable and unique for each district within the NSVAB. During the past three-year period, Anderson-Shasta County, Sutter Buttes-Sutter County, and Paradise-Butte County monitors experienced the highest number of ozone violations in the basin. Ozone concentrations in the NSVAB have remained relatively constant over the past three years, while population and vehicle miles traveled increased during the same period. Ozone concentrations increased appreciably in Anderson-Shasta County, largely due to unfavorable meteorological conditions (NSVAB Air Quality Districts, 2006).

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Regional Air Quality Impacts

Impact 4.3.6 Implementation of the proposed General Plan along with potential development of the Planning Area would exacerbate existing regional levels of ozone and particulate matter. The proposed General Plan's contribution to these conditions is considered **cumulatively considerable**.

Over the life of the proposed General Plan, some of the policies may result in substantial new development and increased population that would in turn adversely impact regional air quality. Buildout of the proposed General Plan would allow for the potential construction of approximately 4,305 dwelling units and 319 acres of commercial, industrial, and office uses over the existing 2003 General Plan buildout conditions. The growth in population and business activity, along with the corresponding increase in vehicle usage, when considered with growth proposed under the proposed General Plan, would contribute to cumulative regional air quality impacts. It also could potentially delay attainment of standards for which counties in the NSVAB currently are in nonattainment status, primarily ozone and PM_{10}.

Air pollutant transport from the Broader Sacramento Area (BSA) has an effect in the NSVAB by adding to the ozone problem within the NSVAB. Ozone precursors are emitted as part of the exhaust of internal combustion engines in the BSA and are transported northward via the prevailing winds. However, Orland cannot control the growth or emissions from neighboring jurisdictions. Therefore, the emissions from the BSA will continue to impact the NSVAB for the foreseeable future.

Mitigation Measures

Implementation of the proposed General Plan policies, programs, and mitigation measures identified under **Impact 4.3.1** through **Impact 4.3.5** would assist in reducing the proposed General Plan's contribution to cumulative regional and local air quality impacts; however, this contribution is still considered **cumulatively considerable** and thus a **significant and unavoidable** impact. No feasible mitigation is available to mitigate this impact.

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4.4 BIOLOGICAL RESOURCES

This section describes the existing biological resources including the special-status species and sensitive habitats known to occur or potentially occur in the proposed City of Orland General Plan Planning Area, the regulations and programs which provide for their protection, and an assessment of the potential impacts resulting from implementation of the proposed General Plan. This section also includes a discussion of mitigation measures necessary to reduce impacts to a less than significant level, where feasible.

The biological resources within the proposed Planning Area were determined from a review of previous environmental documentation for the Planning Area including the City of Orland General Plan 2003–2020 (PMC, 2003), the City of Orland General Plan Update Opportunities and Constraints Report (PMC, 2007), the City of Orland General Plan Update Background Report (PMC, 2008), and the Lower Stony Creek Fish, Wildlife and Water Use Management Plan prepared by the U.S. Department of Interior, Bureau of Reclamation (1998). Furthermore, a number of other resources were used for this evaluation including the California Department of Water Resources (CDWR) 1998 Land Use dataset (CDWR, 1998), an online list of federally listed species provided by the U.S. Fish and Wildlife Service (USFWS) Endangered Species Office (USFWS, 2008a), the California Department of Fish and Game's (CDFG) California Natural Diversity Data Base (CNDDB) (CDFG, 2008), and the California Native Plant Society's (CNPS) Electronic Inventory for the Orland and Kirkwood, California U.S. Geological Survey (USGS, 1951 and 1949, respectively) 7.5-minute quadrangles and surrounding quadrangles (Foster Island, Fruto NE, Stone Valley, Black Butte Dam, Hamilton City, Willows, and Glenn, California). Methods are further described in the Impacts and Mitigation Measures subsection below.

4.4.1 EXISTING SETTING

LOCAL SETTING

The City of Orland is located in Glenn County in the Northern California Sacramento Valley, approximately 100 miles north of Sacramento. The City encompasses approximately 1,876 acres, or 2.93 square miles, and is situated along Interstate 5 within the Orland and Kirkwood, California USGS 7.5-minute quadrangles (USGS 1951 and 1949, respectively) (see **Figure 3.0-1** in Section 3.0, Project Description). For the purposes of the proposed General Plan, the biological resource study area generally follows the Planning Area boundary of the City. However, the northern boundary of the study area was extended beyond the Planning Area boundary to include the Stony Creek floodplain (see **Figure 3.0-2** in Section 3.0).

The Orland Planning Area consists largely of residential, industrial, and commercial development surrounded by and intermingled with agriculture and open space/resource conservation areas. The surrounding vicinity is composed of a similar mix of residential, commercial, agriculture, and open space areas. As described in more detail below, the study area consists of various biological communities including non-native annual grassland, various woodland/forest communities, and agriculture (**Figure 4.4-1**).

The City has a wide range of climate, topographical, soils, and watershed conditions. The climate in the region is hot and subhumid (U.S. Department of Agriculture, 1997). Lowest and highest temperatures are in the narrow range of an annual average of 48.5 degrees Fahrenheit (°F) in the winter to an annual average of 74.9°F in the summer (Western Regional Climate Center, 2008). The average maximum temperature reaches 95.2°F while the average minimum temperature reaches 36.1°F (Western Regional Climate Center, 2008). Average annual precipitation for Orland is 21.22 inches (Western Regional Climate Center, 2008) and the mean freeze-free period is about 250 to 275 days (U.S. Department of Agriculture, 1997).

The City is located in the Sacramento Valley, which consists of nearly level terraces, smooth alluvial fans, narrow floodplains, and water-filled basins. Elevation within this geological province ranges from approximately 100 feet above mean sea level (MSL) at the Sacramento River to approximately 300 feet above MSL at the western edge of the valley. The topography of the Orland area is generally flat, with no significant elevated features. Elevation within the Planning Area ranges from 240 feet to 275 feet above MSL.

The General Plan Planning Area is located on the Stony Creek Fan, an alluvial fan formed as Stony Creek deposited sediments onto the plain of the Sacramento Valley. The fan occupies an area approximately 30 miles long and 25 miles wide at its greatest extent, from Black Butte Dam to the Sacramento River. Please see the Section 4.6, Geology, Seismicity, Soils, and Hazardous Materials, for a complete discussion of geologic features in the Orland area.

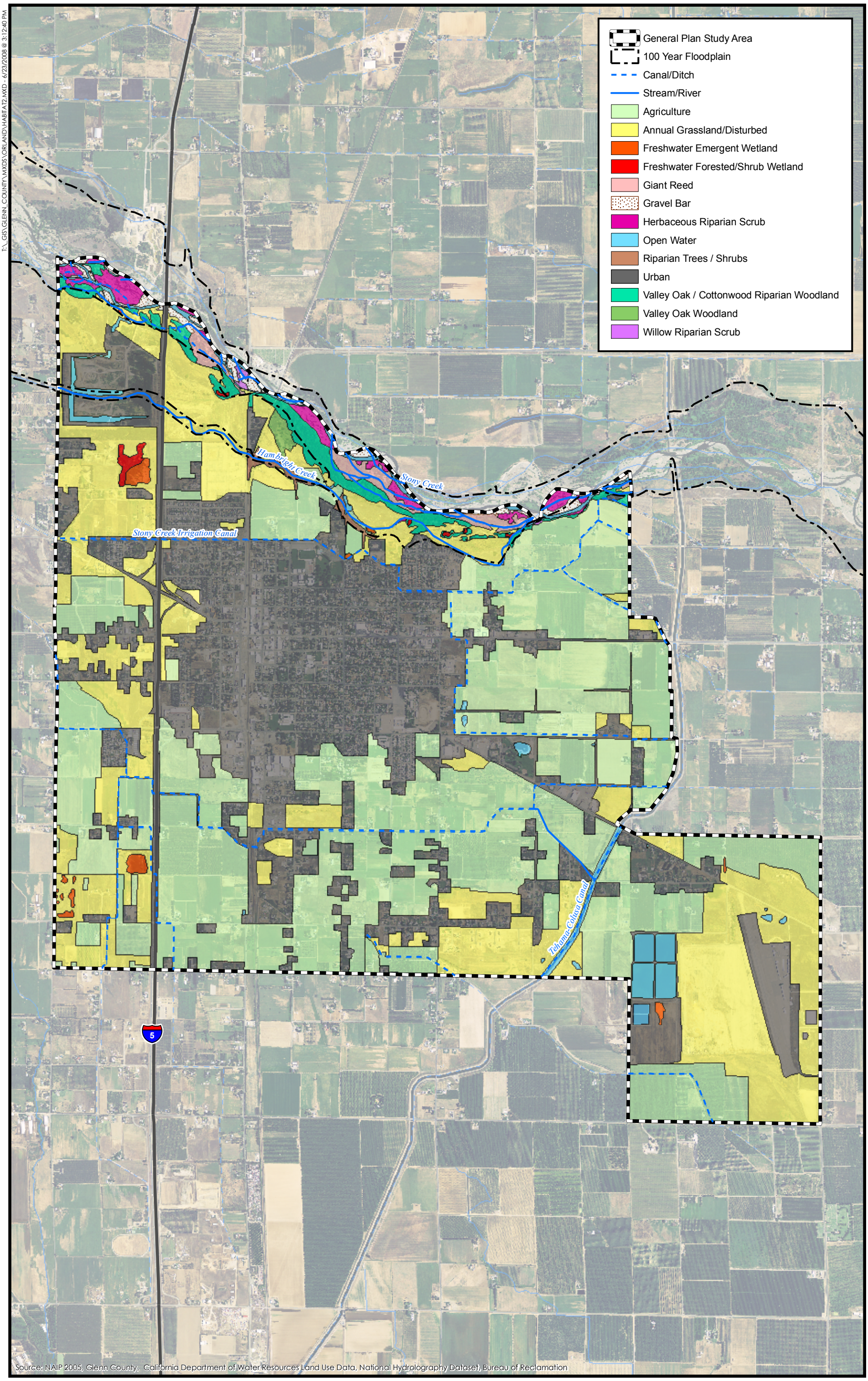
Orland is located in the central portion of the Sacramento River hydrologic region. The Sacramento River is a significant feature of this hydrologic region and is the longest river system in the State of California with major tributaries the Pit, Feather, Yuba, Bear and American rivers. Within the Orland vicinity, prominent hydrologic features include Stony and Hambright creeks. Additionally, the Tehama-Colusa Canal, which supplies irrigation water to the western Sacramento Valley, is located along the eastern boundary of the Planning Area, and several manmade channels traverse the region. Please see Section 4.7, Hydrology and Water Quality, for a complete discussion of hydrologic features in the Orland area.

BIOLOGICAL COMMUNITIES

For planning and mapping purposes, twelve biological communities have been identified within the Planning Area and are depicted in **Figure 4.4-1**. These communities include agriculture, annual grassland/disturbed, freshwater emergent wetland, freshwater forested/shrub wetland, giant reed, gravel bar, herbaceous riparian scrub, open water, urban, valley oak/cottonwood riparian woodland, valley oak woodland, and willow riparian scrub. The biological communities and the common plant and wildlife species occurring, or expected to occur, within these communities are addressed below. **Table 4.4-1** below lists the acreages of each community found within the General Plan Planning Area.

The agriculture, annual grassland/disturbed, and urban communities were based on the California Department of Water Resources 1998 Land Use dataset (CDWR, 1998). The freshwater emergent wetland and freshwater forested/shrub wetland communities were derived from the National Wetlands Inventory (USFWS, 2008b). The open water community was derived as a blend of these two sources. The above-listed communities are described separately from the remaining riparian communities which were derived from the Lower Stony Creek Fish, Wildlife and Water Use Management Plan (U.S. Department of Interior, Bureau of Reclamation, 1998). The exception to this is the open water community which is also included with the riparian communities, as it is related to Stony Creek. The methods used to derive all of these communities are further described under the Impacts and Mitigation Measures subsection.

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Figure 4.4-1
Biological Communities within the
Orland General Plan Study Area

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TABLE 4.4-1
ACREAGE OF BIOLOGICAL COMMUNITIES WITHIN THE STUDY AREA

Biological Communities	Acres*
Agriculture	2,483
Annual Grassland/Disturbed	1,525
Freshwater Emergent Wetland	22
Freshwater Forested/Shrub Wetland	11
Giant Reed	52
Gravel Bar	40
Herbaceous Riparian Scrub	57
Open Water	123
Urban	2,163
Valley Oak/Cottonwood Riparian Woodland	121
Valley Oak Woodland	12
Willow Riparian Scrub	3
TOTAL	**6,603**

** Acreages of communities are approximate and have not been field verified.*

Agriculture

Agricultural areas occur on a variety of land types throughout California. For the purposes of this description, the agricultural biological community includes orchards, row crops, and pasture. The Planning Area is located within an agricultural transition area with field and row crops located around the southern portion of the Planning Area and grazing and tree crops located around the northern portion of the Planning Area. Orchards of almonds, walnuts, olives, peaches, and prunes are found in addition to orange groves. Fields of corn, wheat, rice, and beans also surround the Planning Area. Please see the Agriculture Resources section (Section 4.2) for more details regarding agriculture.

Typically, agricultural fields are monotypic; however, trees are sometimes planted as windbreaks at field edges, and some ruderal (weedy) vegetation can be found along roadsides, at field edges, between rows, and under the canopies in orchards. Cover crops are frequently planted between rows in orchards, creating microhabitat for insects and other wildlife.

Agricultural lands are most commonly associated with grasslands and urban areas. Transitions between habitats are generally abrupt, marking the edge of cultivated areas. Because of their high degree of disturbance, agricultural areas generally have a low habitat value for wildlife, although a number of species adapted for disturbed conditions can utilize these areas. Fruit and nut orchards and fields of corn or pasture provide food and cover for squirrels, numerous birds, raccoons (*Procyon lotor*), and mule deer (*Odocoileus hemionus*). Other species that take advantage of these food sources are feral pig (*Sus scrofa*), ring-necked pheasant (*Phasianus colchicus*), American crow (*Corvus brachyrhynchos*), Norway rat (*Rattus norvegicus*), coyote (*Canis latrans*), opossum (*Didelphis virginiana*), and striped skunk (*Mephitis mephitis*). Seasonally flooded pastures can provide important habitat for migratory waterfowl.

Annual Grassland/Disturbed

Grassland communities occur throughout most of California at virtually all elevations and are dominated by annual and perennial grasses and forbs. Community composition in grassland varies depending on habitat characteristics. Annual grasses and forbs dominate areas that are heavily grazed or otherwise disturbed. Grazing pressure can encourage invasion from non-native annual species. Dominant species in these areas may include brome (*Bromus* spp.), wild oats (*Avena fatua*), Italian ryegrass (*Lolium multiflorum*), and others. In areas lacking disturbance, perennial grasses, such as purple needlegrass (*Nasella pulchra*) and creeping wild rye (*Leymus triticoides*), can be dominant.

Moist areas, such as wetlands and meadows, support a variety of plants adapted to saturated or inundated soil conditions. These are classified as palustrine (marshy) emergent wetlands under the Cowardin (Cowardin et al. 1979) system and can include a number of wetland grasses and forbs, as well as various species of rush (*Juncus* spp.), spikerush (*Eleocharis* spp.), and sedge (*Carex* spp.). Wetland features are described in more detail below.

Many wildlife species use grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or woody vegetation for cover, breeding, and resting habitat. Grasslands may also provide forage for migratory waterfowl on a seasonal basis. Common wildlife species found in grasslands include Pacific chorus or tree frog (*Pseudacris regilla*), western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), western rattlesnake (*Crotalus viridis*), western burrowing owl (*Athene cunicularia hypugea*), killdeer (*Charadrius vociferus*), western meadowlark (*Sturnella neglecta*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), red-winged blackbird (*Agelaius phoeniceus*), American kestrel (*Falco sparverius*), turkey vulture (*Cathartes aura*), northern flicker (*Colaptes auratus*), western kingbird (*Tyrannus verticalis*), wild turkey (*Meleagris gallopavo*), great horned owl (*Bubo virginianus*), common raven (*Corvus corax*), cliff swallow (*Hirundo pyrrhonota*), California ground squirrel (*Spermophilus beecheyi*), and coyote.

Urban

The urban community is distinguished by the presence of both native and exotic species maintained in a relatively static composition within a downtown, residential, or suburbia setting. Species richness in these areas depends greatly upon community design (i.e., open space considerations) and proximity to the natural environment. Vegetation in these areas consists primarily of introduced ornamental trees and shrubs and manicured lawns as well as invasive weeds in disturbed areas.

The wildlife value of urban habitats varies from very low in dense, highly urbanized areas to relatively high in areas with a lower human density and a significant amount of natural vegetation remaining. Urban areas occur throughout California in association with every major habitat type. Animal species that occur in these areas typically include introduced species adapted to human habitation. The most densely developed urban areas provide wildlife habitat for western scrub-jay, rock dove (*Columba livia*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), Brewer's blackbird (*Euphagus cyanocephalus*), and American crow (*Corvus brachyrhynchos*). Associated mammals include house mouse (*Mus musculus*), Norway rat, little brown myotis (*Myotis lucifugus*), raccoon, opossum, squirrels, and striped skunk. Suburban areas provide habitat for a greater diversity of native birds and mammals, such as bushtits (*Psaltriparus minimus*), oak titmouse (*Baeolophus inornatus*), chestnut-backed chickadee (*Poecile rufescens*), California quail (*Callipepla californica*), and mule deer.

Freshwater Emergent Wetland

The freshwater emergent wetland community consists of potentially jurisdictional waters of the U.S. According to Cowardin et al. (1979), emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes (water-loving plants). This vegetation is present most of the growing season and is usually dominated by perennials. Common plant species found in freshwater emergent wetlands include cattails (*Typha* spp.), bulrush (*Scirpus* spp.), arrowhead (*Sagittaria latifolia*), and various rushes and sedges.

Fresh emergent wetlands are one of the most productive wildlife habitats in California (Mayer and Laudenslayer, 1988). Fresh emergent wetlands provide food, cover, and water for many species of birds and also for reptiles, mammals, and amphibians. Common wildlife species are similar to those described under the riparian communities discussion below.

Freshwater Forested/Shrub Wetland

The freshwater forested/shrub wetland community consists of potential jurisdictional waters of the U.S. According to Cowardin et al. (1979), the freshwater forested/shrub wetland community is a combined category that includes both woody vegetation less than 20 feet tall and woody vegetation that is 20 feet or taller. The shrub wetland component includes shrubs and young trees and trees or shrubs that are stunted because of environmental conditions. This type of wetland may represent a successional stage leading to a forested wetland or it may be a stable community. The forested wetland component is common in the western U.S. where moisture is relatively abundant, particularly along rivers and in the mountains. The forested wetland typically includes an overstory of trees, an understory of younger trees or shrubs, and an herbaceous layer. The freshwater forested/shrub wetland community is similar to the riparian woodland community which is described in more detail below.

Open Water

The open water community consists of potential jurisdictional waters of the U.S. including seasonal wetlands, ponds, ephemeral drainages, and intermittent to perennial streams/rivers. **Figure 4.4-1** illustrates the known wetlands and streams present within the City of Orland vicinity. This figure is not meant to be a comprehensive account of all waters and wetlands within the Planning Area as additional wetland features are likely to exist. Wetlands and waterways were identified using the online National Wetlands Inventory (USFWS, 2008b), the California Department of Water Resources 1998 Land Use dataset, and the Lower Stony Creek Fish, Wildlife and Water Use Management Plan (U.S. Department of Interior, Bureau of Reclamation, 1998).

Wetland habitats may support numerous special-status plant and animal species, and are known to be highly productive and diverse ecosystems. Wetlands typically range from approximately 1 percent to 5 percent of the landscape and are often the most ecologically productive portion of the landscape. They provide food, cover, and water for more than 160 species of birds as well as a variety of mammals, reptiles, and amphibians. Species that may occur within the Planning Area and vicinity include Pacific treefrog, bullfrog (*Rana catesbeiana*), red-winged blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*), yellow warbler (*Dendrocia petechia*), vole (*Microtis* spp.), shrew (*Sorex* spp.), and deer mouse (*Peromyscus maniculatus*).

The rivers and streams in Glenn County, and the wetlands and seasonal drainages that are tributaries to those rivers, are essential fish habitat. All land use activities in the Stony Creek watershed affect the volume and quality of surface water runoff, and consequently, the value

and production of fish habitat. Since most fish habitat and the majority of fish populations have been negatively impacted by past land use practices, it is imperative that future land use be conducted in a manner that is sensitive to fish habitat or the most valuable species will be extirpated.

Riparian Communities Associated with the Stony Creek Corridor

Riparian woodlands and forests are highly valuable biotic communities in Glenn County. They commonly occur as linear and rather narrow assemblages along riparian and stream corridors. Stony Creek, Hambright Creek, and the associated floodplain of these streams provide the greatest extent of a more natural environment within the Orland Planning Area totaling approximately 675 acres.

Riparian communities provide resources for a variety of mammals, birds, reptiles, and amphibians. These resources include nesting and foraging habitat, as well as resting, thermal, and escape cover. Species associated with each zone are listed below under each zone description. Species that utilize this community include, but are not limited to, coyote, raccoon, opossum, wrentit (*Chamaea fasciata*), northern flicker (*Colaptes auratus*), great horned owl, common garter snake, Pacific tree frog, and western fence lizard.

According to the Lower Stony Creek Fish, Wildlife and Water Use Management Plan prepared by the U.S. Department of Interior, Bureau of Reclamation (1998), three zones within Stony Creek have been identified by the Bureau of Reclamation: active, border, and outer. Different habitat types, and their associated wildlife, fall within one of these three zones in Stony Creek and are described below:

- **Active Zone Units:** Within this zone, sand and gravel bars are frequently deposited and eroded. Vegetation in the active zone is usually sparse because of frequent, scouring flood flows. The active zone can be thought of as the frequently flooded zone. Most of the active aggregate extraction on Stony Creek takes place within this zone.

- **Open Water:** The open water unit corresponds to the active channel portion of Stony Creek as interpreted from 1992 aerial photos. The extent and location of open water varies considerably from year to year.

- **Gravel Bar:** This unit encompasses vegetated and unvegetated gravel bars within the active zone of Stony Creek. Vegetated sand and gravel bars in Stony Creek typically have less than 20 percent cover of vegetation. Scattered patches and individuals of giant reed can be found to some extent on nearly all gravel bars downstream from the I-5 bridge and to a lesser extent upstream of the bridge.

- **Giant Reed:** This unit indicates vegetated gravel bars with greater than 20 percent cover of giant reed, a weedy non-native grass. In many instances giant reed (Arundo donax) forms a monoculture stand with virtually no other types of vegetation present. Significant giant reed stands are present along Stony Creek.

Common wildlife species associated with the active zone include spotted sandpiper (*Actitis macularia*), killdeer, black phoebe (*Sayornis nigricans*), bald eagle (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*), beaver, and coyote. Scattered stands of cottonwoods remaining in the active zone are important for a variety of migrant birds. Belted kingfishers, bank swallows (*Riparia riparia*), and northern rough-winged swallows (*Stelgidopteryx serripennis*) nest in vertical earthen banks of the active zone along undisturbed portions of lower Stony Creek. California

gulls (*Larus californicus*) and herring gulls (*Larus argentatus*) forage along the creek channels and unvegetated gravel bars.

Major portions of lower Stony Creek are currently dominated by giant reed and tamarisk (*Tamarix* sp.), and these non-native plants have low wildlife habitat values. A few species such as striped skunks, raccoons, coyotes, and owls may use these plants for cover, but giant reed and tamarisk are not considered preferred foraging or breeding habitats for native birds and mammals of California. Giant reed currently creates a monoculture of unproductive wildlife habitat throughout major portions of the active zone of the creek. Giant reed has replaced native willows (*Salix* spp.) and cottonwoods (*Populus* spp.), with a potential for lost wildlife habitat.

Border Zone Units: This is the zone that roughly corresponds to the low floodplain of Stony Creek. The substrate in this zone is more stable than in the active zone and is consequently more heavily vegetated. In many instances, this zone is restricted to a thin band between the incised channel and the farmed uplands.

- **Willow Riparian Scrub:** Willow riparian scrub is an early seral, shrub-dominated riparian vegetation type. Typical shrub species of willow riparian scrub include arroyo willow (*Salix lasiolepis*), sandbar willow (*Salix exigua*), blackberries (*Rubus* spp.), mule fat (*Baccharis salicifolia*), tamarisk, giant reed, and small individuals of Goodding's willow (*Salix gooddingii*). The majority of cover in this vegetation type is provided by one, or several, species of willow. This is probably the most under-represented vegetation type on Stony Creek. Most of the willow riparian scrub that once occurred on Stony Creek is likely now dominated by giant reed.

- **Valley Oak/Cottonwood Riparian Woodland:** This unit represents the remnant "old growth" riparian forest associated with portions of Stony Creek. Historically, this vegetation type consisted of a closed canopy riparian forest flanking the floodplain of the creek. Currently, this vegetation type is limited to scattered narrow stringers of tall trees. Characteristic trees of this vegetation type may include valley oak (*Quercus lobata*), white alder (*Alnus rhombifolia*), Fremont cottonwood (*Populus fremontii*), Goodding's willow, and an occasional western sycamore (*Plantanus racemosa*). The understory of valley oak/cottonwood riparian woodland is composed of components of willow riparian scrub and herbaceous riparian vegetation.

- **Herbaceous Riparian Vegetation:** This unit represents areas within the border zone that are dominated by herbaceous vegetation consisting of forbs and grasses. Common species in this vegetation type may include sweetclovers (*Melilotus* spp.), yellow star-thistle (*Centaurea solstitialis*), thistles (*Cirsium* spp.), cocklebur (*Xanthium strumarium*), ripgut brome grass (*Bromus diandrus*), and other opportunistic herbaceous species.

- **Giant Reed:** The giant reed unit in the border zone is identical in structure and composition to the giant reed unit in the active zone. The largest and densest stands of giant reed in the border zone are found in the vicinity of the City of Orland.

Species such as Cooper's hawk (*Accipiter cooperii*), Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), white-tailed kite (*Elanus leucurus*), great egret (*Ardea alba*), and great blue heron (*Ardea herodias*) build bulky stick nests high in the crowns of cottonwoods and oaks in the border zone of many foothill creeks. Woodpeckers excavate cavities in the border zone trees that may be subsequently used by other hole-nesting species such as western screech-owl (*Otus kennicottii*), tree swallow

(*Tachycineta bicolor*), plain titmouse (*Parus inornatus*), and western bluebird (*Sialia mexicana*). Migratory and resident passerine birds such as flycatcher (*Empidonax* spp.), vireos (*Vireo* spp.), warbler (Family Parulidae), and sparrows (Family Emberizidae) forage and nest in cottonwoods and oaks.

Small mammals attracted to rich resources of border and outer zone riparian habitats, in turn, draw predatory animals like red-shouldered hawk, white-tailed kite, gray fox (*Urocyon cinereoargenteus*), and coyote. Several bat species roost in streamside trees along lower Stony Creek. Reptiles that occur in border zone habitats include Pacific tree frog, western fence lizard, western skink (*Eumeces skiltonianus*), alligator lizard (*Elgaria multicarinata*), western whiptail (*Cnemidophorus tigris*), common kingsnake (*Lampropeltis getulus*), western rattlesnake, gopher snake (*Pituophis catenifer*), and racer (Family Colubridae).

Outer Zone Units: This is the zone that roughly corresponds to the high floodplain and low terraces of Stony Creek. This zone is composed of annual grassland and valley oak woodland habitats.

- **Valley Oak Woodland:** This unit encompasses remnant stands of valley oak woodland on the high floodplain. Historically, valley oak woodland occurred within the 100-year floodplain of Stony Creek. Valley oak woodland consists of an open canopied woodland with scattered individuals or groves of valley oaks in an annual grassland matrix. The majority of valley oak woodland is savannah-like in structure with widely spaced trees dotting the grassland.

- **California Annual Grassland:** This unit is present where soil conditions do not support intensive agriculture. Occasionally, scattered oaks may occur in this vegetation type; however, it is largely treeless. Common species in California annual grassland include soft chess (*Bromus hordeaceus*), filaree (*Erodium* spp.), blue dicks (*Dichelostemma capitatum*), and owl's clover (*Castilleja attenuate*).

The current flow releases from Black Butte Reservoir, with a decrease in magnitude and an increase in duration, tend to decrease overbank flooding and deposition of fine material, which is essential for the regeneration of plant seedlings. The reduction of sediment supply as a result of the dam reduces significantly the amount of fine material in the system and contributes to channel armoring and the winnowing of fine material from the bed and bar surfaces. This reduces effective habitat for plant regeneration.

The outer zone of lower Stony Creek includes high terrace habitats such as oak woodlands, grasslands, orchards, and pastures. Oak woodlands and grasslands near the creek provide shade, shelter, and breeding habitat for many wildlife species, including black-tailed deer, gray fox, western gray squirrel, white-tailed kite, turkey vulture, American kestrel, northern harrier (*Circus cyaneus*), mourning dove, California quail, acorn woodpecker, Nuttall's woodpecker (*Picoides nuttallii*), scrub jay, yellow-billed magpie (*Pica nuttalli*), rufous-sided towhee (*Pipilo erythrophthalmus*), and northern oriole (*Icterus galbula*).

Mammals usually found in adjacent grasslands and outer zone oak woodlands, such as deer mice, California vole (*Microtus californicus*), western gray squirrel, black-tailed hare (*Lepus californicus*), and gray fox, often use riparian corridors as refuge from summer heat and drought. All these animals use the food, water, and cover that are found in riparian and wetland habitats.

SPECIAL-STATUS SPECIES

Special-status plant and animal species are those that are afforded special recognition by federal, state, or local resource agencies or organizations. Special-status species are of relatively limited distribution and generally require specialized habitat conditions. Special-status species are defined as:

- Listed, proposed, or candidate for listing under the state or federal Endangered Species Acts;
- Protected under other regulations (e.g., local policies, Migratory Bird Treaty Act);
- California Department of Fish and Game's Species of Special Concern and California Fully Protected Species;
- Listed as species of concern (List 1B, 2, or 3 plants) by California Native Plant Society (CNPS); or
- Species that receive consideration during environmental review under the California Environmental Quality Act (CEQA).

The potential for special-status species to occur within the Planning Area was evaluated by querying the CNDDB (CDFG, 2008), the USFWS (2008a), and the CNPS (2008) for previously recorded occurrences of special-status species within the Orland and Kirkwood, California U.S. Geological Survey (USGS 1951 and 1949, respectively) 7.5-minute quadrangles and surrounding quadrangles (Foster Island, Fruto NE, Stone Valley, Black Butte Dam, Hamilton City, Willows, and Glenn, California).

CDFG maintains records for the distribution and known occurrences of sensitive species and habitats in the CNDDB. The CNDDB is organized into map areas based on 7.5-minute topographic maps produced by the United States Geological Survey (USGS). The CNDDB is based on actual recorded occurrences but does not constitute an exhaustive inventory of every resource. The absence of an occurrence in a particular location does not necessarily mean that special-status species are absent from that area, but that no data has been entered into the CNDDB inventory. Project-specific field surveys are generally required to provide a conclusive determination on the presence or absence of sensitive resources from a particular location where there is evidence of potential occurrence.

Figure 4.4-2 depicts the locations of special-status species recorded within the proposed Planning Area. **Table C-1** in **Appendix C** identifies the special-status species plant and animal species, respectively, which have potential to be affected by projects occurring within the Planning Area. The habitat preferences for each special-status species were carefully reviewed and considered in the context of the Planning Area limits. Species having no potential for occurrence are not expected to occur based on the known elevation or distribution range of the species, or the lack of suitable habitat. Species that do have potential for occurrence within the proposed Planning Area are described further in **Appendix C** following **Table C-1**.

Special-status Plants

Thirteen special-status plant species have the potential to occur within the proposed Planning Area. The CNDDB (CDFG, 2008) identified the occurrence of one sensitive plant, Stony Creek spurge (*Chamaesyce ocetella* ssp. *rattanii*), within one mile of the Planning Area (**Figure 4.4-2**).

Table C-1 in **Appendix C** includes the common name and scientific name for each species, regulatory status (federal, state, local, CNPS), habitat descriptions, plant species identification period, and potential for occurrence within the proposed Planning Area. Individual species accounts are provided in **Appendix C**. These plants are afforded special protection in the California environmental review process and are considered sensitive resources. Habitats supporting conditions suitable for these species should be considered sensitive and as such should be surveyed prior to further development in these areas. If some or all of these species are found in areas proposed for development, the appropriate resource agencies shall be contacted and, if possible, those areas should be protected though mitigation or avoided.

Special-status Wildlife

Thirty-six special-status wildlife species identified in **Table C-1** in **Appendix C** have the potential to occur in the proposed Planning Area. The general groupings of these species are described below. Where appropriate, individual species accounts are provided in **Appendix C**. There is one recorded CNDDB occurrence of a special-status wildlife species, tricolored blackbird (*Agelaius tricolor*), within one mile of the Planning Area (**Figure 4.4-2**).

Invertebrate Species

Four special-status invertebrate species identified in **Table C-1** in **Appendix C** have the potential to occur. There are no recorded occurrences of special-status invertebrate species within the vicinity of the proposed Planning Area (CDFG, 2008). Individual species accounts are provided in **Appendix C**.

Fish Species

Table C-1 of **Appendix C** identifies six special-status fish species as potentially occurring within the Planning Area; however, due to environmental and physical constraints, it is unlikely that spawning populations are present. This section presents an account of the existing fisheries resources in the proposed Planning Area. Fisheries information was compiled and summarized primarily from the Lower Stony Creek Fish, Wildlife and Water Use Management Plan prepared by the U.S. Department of Interior, Bureau of Reclamation (1998).

Three types of native fish assemblages use lower Stony Creek. These include larger migratory species, smaller resident non-migratory species, and salmonid species. Figure 5-6 in the Orland General Plan Update Background Report (PMC, 2008) depicts general locations along Stony Creek populated by fish. This figure should be used with caution, however, as appropriate flows, water temperature, and habitat conditions are not readily available for spawning Chinook salmon as detailed by this figure.

Stony Creek below Black Butte Dam extends approximately 24 miles before its confluence with the Sacramento River. The majority of the adjacent riparian corridor of the creek is privately owned and, as such, fishing access is restricted. Stony Creek's streambed has a low gradient and alternates between a meandering single channel and a braided channel. Water temperatures in Stony Creek become warm in the summer months, providing suitable habitat conditions for many native and introduced (exotic) warm-water species. Flows in Stony Creek can diminish to extremely low levels during the summer months, resulting in segmented stream habitats.

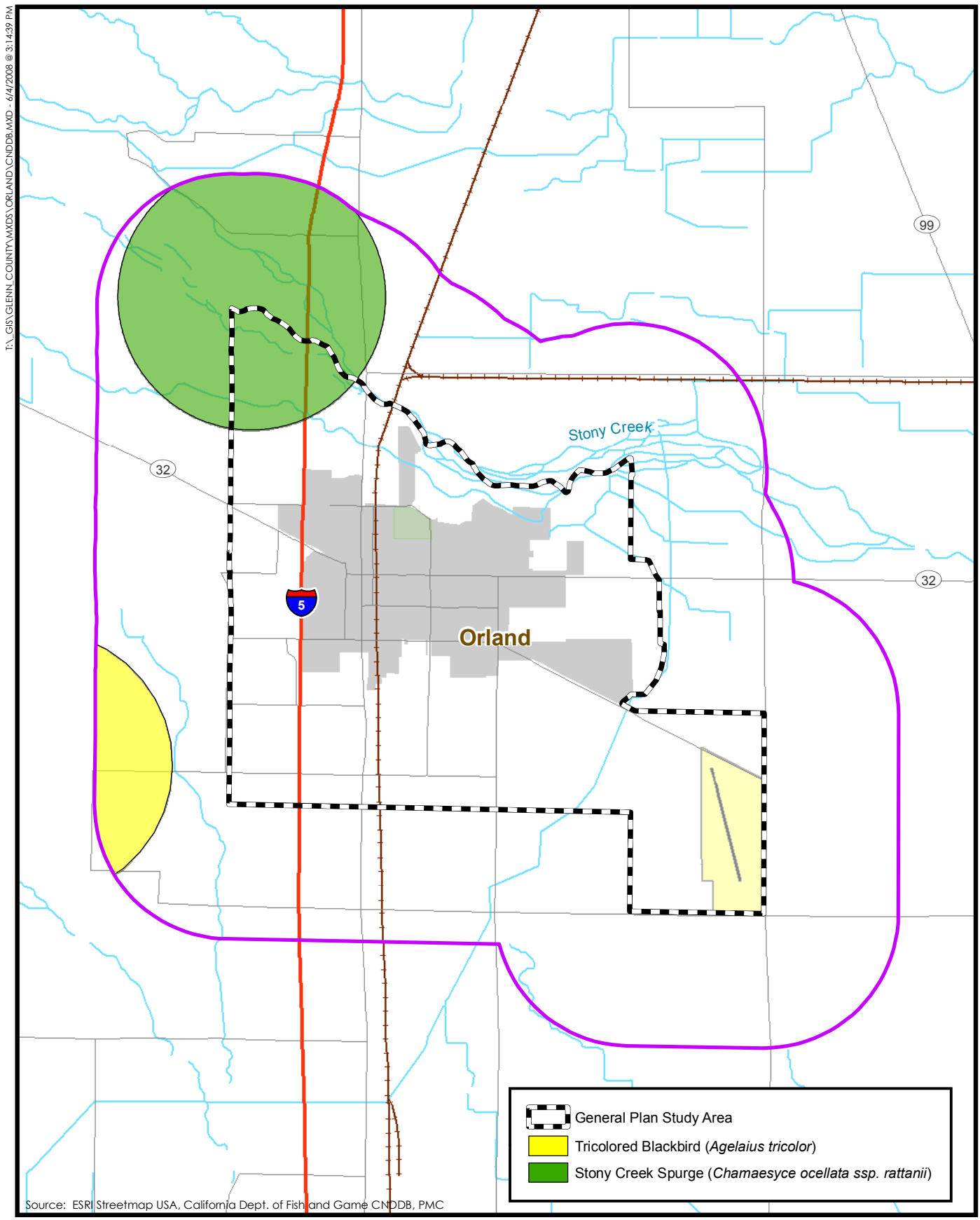


Figure 4.4-2
Recorded Occurrences of Special-status Species within a One Mile Radius of the General Plan Study Area

PMC

Adult Non-Salmonid Migratory Species

Adult non-salmonid migratory species such as Sacramento sucker (*Catostomus occidantalis*), hardhead (*Mylopharodon conocephalus*), Sacramento pike minnow (*Ptychocheilus grandis*), and hitch (*Lavinia exilicauda*) migrate out of the Sacramento River in late winter through spring to spawn in lower Stony Creek. Juveniles of these species rear and remain in Stony Creek up to several years. To flourish, these species require free movement up and downstream. The abundance of these species in Stony Creek is unknown.

Smaller Non-Migratory Native Species

Smaller non-migratory native species found on lower Stony Creek include the speckled dace (*Rhinichthys osculus*), tule perch (*Hysterocarpus traskii*), California roach (*Hesperoleucus symmetricus*), and riffle sculpin (*Cottus gulosus*). These species maintain populations entirely within Stony Creek. Both adults and juveniles of these resident species inhabit pools and riffles that become segmented at times as a result of seasonal low flows. In addition to native non-migratory fish species, introduced species including black bass (*Micropterus salmoides*) and smallmouth bass (*Micropterus dolomieu*), sunfish (*Centrarchus* spp.), crappie (*Pomoxis* spp.), and minnows (*Pimephales promelas*) reside in lower Stony Creek. Many of these species have been transported from Black Butte Reservoir into Stony Creek and have become established in downstream reaches. Fishing pressure is light because of limited angler access. The abundance of these species is unknown at the present time.

Salmonids

Historically, spring-run Chinook salmon (*Oncorhynchus tshawytscha*) were found in the Stony Creek watershed above the present dams and reservoirs. The current presence of salmonids in lower Stony Creek has been debated. Migratory Chinook salmon and steelhead trout (*Oncorhynchus mykiss*) have been known to use Stony Creek, although documentation on spawning activities is limited and conflicting, and exact locations are not always provided. Salmonid use of lower Stony Creek is predominantly that of rearing non-natal juveniles from other spawning areas (Chinook salmon and steelhead) and intermittent spawning and rearing of natal juveniles (Chinook salmon). The existing opportunistic use by salmonids is currently limited both spatially and temporally, due to their life cycle, water temperature, and habitat.

Amphibian and Reptile Species

Five special-status amphibian and/or reptile species identified in **Table C-1** of **Appendix C** have the potential to occur within the Planning Area, though there are no recorded occurrences of special-status amphibian or reptile species within one mile of the proposed Planning Area (CDFG, 2008). Individual species accounts are provided in **Appendix C**.

Avian Species

Fourteen special-status avian species listed in **Table C-1** of **Appendix C** may utilize the proposed Planning Area as foraging and/or nesting habitat. There is one recorded occurrence of tricolored blackbird (*Agelaius tricolor*) within one mile of the Planning Area (CDFG, 2008) (**Figure 4.4-2**). Individual species accounts are provided in **Appendix C**.

The nests of raptors and migratory bird species are protected under the Migratory Bird Treaty Act (MBTA). Active raptor nests are also afforded additional protection in the California Fish and Game Code Section 3503.5. As such, proposed development within areas supporting suitable

nesting habitat for any or all of these species must be surveyed prior to construction in order to determine the presence/absence of these species nesting within the Planning Area. Habitat management planning may allow development to continue while protecting those avian species that are most sensitive.

Mammal Species

Seven special-status mammal species listed in **Table C-1** of **Appendix C** have the potential to occur within the proposed Planning Area. These species may utilize this area for shelter, foraging, and breeding habitat. There are no recorded occurrences of special-status mammal species within one mile of the proposed Planning Area (CDFG, 2008). Individual species accounts are provided in **Appendix C**.

As these species are considered sensitive by state and/or local resource agencies, focused surveys for these species should be conducted prior to the commencement of a project with discretionary approval that may remove or fragment suitable habitats for these species. If any or all of these species are observed during the focused surveys, or if evidence of these species is found within the Planning Area, the appropriate resource agency should be contacted and effective management strategies should be developed to protect these species and their associated habitats.

4.4.2 REGULATORY FRAMEWORK

The following describes federal, state, and local environmental laws and policies that are relevant to the General Plan planning process.

FEDERAL

Endangered Species Act

Provisions of the federal Endangered Species Act (FESA), as amended (16 USC 1531), protect federally listed threatened and endangered species and their habitats from unlawful take. "Take" under FESA includes activities such as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The United States Fish and Wildlife Service (USFWS) regulations define harm to include some types of "significant habitat modification or degradation." The United States Supreme Court ruled on June 29, 1995, that "harm" may include habitat modification "...where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." For projects with a federal nexus, Section 7 of FESA requires that federal agencies, in consultation with USFWS or the National Oceanic and Atmospheric Administration (NOAA) Fisheries, use their authorities to further the purpose of FESA and to ensure that their actions are not likely to jeopardize the continued existence of listed species or result in destruction or adverse modification of critical habitat. Section 10(a)(1)(B) allows non-federal entities to obtain permits for incidental taking of threatened or endangered species through consultation with USFWS or NOAA Fisheries.

Clean Water Act, Section 404

The objective of the Clean Water Act (CWA, 1977, as amended) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Discharge of fill material into waters of the U.S., including wetlands, is regulated by the Army Corps of Engineers (ACOE) under Section 404 of the federal Clean Water Act (33 USC 1251–1376). COE regulations implementing

Section 404 define waters of the U.S. to include intrastate waters, including lakes, rivers, streams, wetlands, and natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce. Wetlands are defined for regulatory purposes as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3; 40 CFR 230.3). The jurisdictional boundaries for other waters of the U.S. are identified based on the presence of an ordinary high water mark (OHWM) as defined in 33 CFR 328.3(e). The placement of structures in "navigable waters of the U.S." is also regulated by COE under Section 10 of the federal Rivers and Harbors Act (33 USC 401 et seq.). Projects are permitted under either individual or general (e.g., nationwide) permits. Specific applicability of permit type is determined by COE on a case-by-case basis.

In 1987 COE published a manual that standardized the manner in which wetlands were to be delineated nationwide. To determine whether areas that appear to be wetlands are subject to COE jurisdiction (i.e., are "jurisdictional" wetlands), a wetlands delineation must be performed. Under normal circumstances, positive indicators from three parameters, (1) wetland hydrology, (2) hydrophytic vegetation, and (3) hydric soils must be present to classify a feature as a jurisdictional wetland. More recently, COE developed the Arid West Regional Supplement (Supplement) (ACOE, 2006) for identifying wetlands and distinguishing them from aquatic habitats and other nonwetlands. The Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region. For any wetland delineations submitted after June 5, 2007, COE is requiring that the site be surveyed according to both the 1987 manual and the Supplement guidelines. In addition to verifying wetlands for potential jurisdiction, COE is responsible for the issuance of permits for projects that propose filling of wetlands. Any permanent loss of a jurisdictional wetland as a result of project construction activities is considered a significant impact.

Migratory Bird Treaty Act

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The vast majority of birds found in the Planning Area are protected under the MBTA.

Bald and Golden Eagle Protection Act

The bald eagle and golden eagle are federally protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c). It is illegal to take, possess, sell, purchase, barter, offer to sell or purchase or barter, transport, export, or import at any time or in any manner a bald or golden eagle, alive or dead; or any part, nest or egg of these eagles unless authorized by the Secretary of the Interior. Violations are subject to fines and/or imprisonment for up to one year. Active nest sites are also protected from disturbance during the breeding season.

STATE

California Endangered Species Act

Under the California Endangered Species Act (CESA), the California Department of Fish and Game (CDFG) has the responsibility for maintaining a list of endangered and threatened species (California Fish and Game Code 2070). CDFG maintains a list of "candidate species" which are

species that CDFG formally notices as being under review for addition to the list of endangered or threatened species. CDFG also maintains lists of "species of special concern" which serve as species "watch lists." Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project site and determine whether the proposed project will have a potentially significant impact on such species. In addition, CDFG encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of CESA. Take of protected species incidental to otherwise lawful management activities may be authorized under California Fish and Game Code Section 206.591. Authorization from CDFG would be in the form of an Incidental Take Permit.

Porter-Cologne Water Quality Control Act

Water quality in California is governed by the Porter-Cologne Water Quality Control Act. This law assigns overall responsibility for water rights and water quality protection to the State Water Resource Control Board (SWRCB) and directs the nine statewide Regional Water Quality Control Boards (RWQCBs) to develop and enforce water quality standards within their boundaries.

State Definition of Covered Waters

Under California state law, "waters of the state" means "any surface water or groundwater, including saline waters, within the boundaries of the state." Therefore, water quality laws apply to both surface and groundwater. After the U.S. Supreme Court decision in *Solid Waste Agency of Northern Cook County* v. *Army Corps of Engineers* (*SWANCC v. ACOE*), the Office of Chief Counsel of the SWRCB released a legal memorandum confirming the State's jurisdiction over isolated wetlands. The memorandum stated that under the California Porter-Cologne Water Quality Control Act, discharges to wetlands and other waters of the state are subject to State regulation, and this includes isolated wetlands. In general, the RWQCBs regulate discharges to isolated waters in much the same way as they do for federal-jurisdictional waters, using Porter-Cologne rather than CWA authority.

Clean Water Act, Section 401

Section 401 of the CWA requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. The appropriate Regional Water Quality Control Board regulates Section 401 requirements.

The Central Valley Regional Water Quality Control Board (CVRWQCB) is responsible for enforcing water quality criteria and protecting water resources within the Planning Area. CVRWQCB is responsible for controlling discharges to surface waters of the state by issuing waste discharge requirements (WDR) or by issuing conditional waivers to WDRs. CVRWQCB requires that a project proponent obtain a CWA Section 401 water quality certification for Section 404 permits granted by COE. A request for water quality certification (including WDRs) by CVRWQCB and a Notice of Intent (NOI) application for a General Permit for Storm Water Discharges Associated with Construction Activities are prepared and submitted following completion of the CEQA environmental document and submittal of the wetland delineation to COE.

Streambed Alteration Agreement (Sections 1600-1607 of the California Fish and Game Code)

State and local public agencies are subject to Section 1602 of the California Fish and Game Code, which governs construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by CDFG. Under Section 1602, a discretionary Streambed Alteration Agreement permit must be issued by CDFG to the project developer prior to the initiation of construction activities within lands under CDFG jurisdiction. As a general rule, this requirement applies to any work undertaken within the 100-year floodplain of a stream or river containing fish or wildlife resources.

Native Plant Protection Act

The Native Plant Protection Act (California Fish and Game Code Sections 1900-1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered (as defined by CDFG). An exception to this prohibition in the act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify CDFG and give that state agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed (Fish and Game Code Section 1913 exempts from take prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way"). Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the proposed project.

Birds of Prey

Under Section 3503.5 of the California Fish and Game Code it is unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

"Fully Protected" Species

California statutes also accord "fully protected" status to a number of specifically identified birds, mammals, reptiles, and amphibians. These species cannot be taken, even with an incidental take permit. Section 3505 of the California Fish and Game Code makes it unlawful to take "any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such a bird." Section 3511 protects from take the following fully protected birds: (a) American peregrine falcon (*Falco peregrinus anatum*); (b) brown pelican (*Pelecanus occidentalis*); (c) California black rail (*Laterallus jamaicensis coturniculus*); (d) California clapper rail (*Rallus longirostris obsoletus*); (e) California condor (*Gymnogyps californianus*); (f) California least tern (*Sterna albifrons browni*); (g) golden eagle; (h) greater sandhill crane (*Grus canadensis tabida*); (i) light-footed clapper rail (*Rallus longirostris levipes*); (j) southern bald eagle (*Haliaeetus leucocephalus leucocephalus*); (k) trumpeter swan (*Cygnus buccinator*); (l) white-tailed kite (*Elanus leucurus*); and (m) Yuma clapper rail (*Rallus longirostris yumanensis*).

California Fish and Game Code Section 4700 identifies the following fully protected mammals that cannot be taken: (a) Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*); (b) bighorn sheep (*Ovis canadensis*), except Nelson bighorn sheep (subspecies *Ovis canadensis nelsoni*); (d) Guadalupe fur seal (*Arctocephalus townsendi*); (e) ring-tailed cat (genus *Bassariscus*); (f) Pacific right whale (*Eubalaena sieboldi*); (g) salt-marsh harvest mouse

(*Reithrodontomys raviventris*); (h) southern sea otter (*Enhydra lutris nereis*); and (i) wolverine (*Gulo gulo*).

Fish and Game Code Section 5050 protects from taking the following fully protected reptiles and amphibians: (a) blunt-nosed leopard lizard (*Crotaphytus wislizenii silus*); (b) San Francisco garter snake (*Thamnophis sirtalis tetrataenia*); (c) Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*); (d) limestone salamander (*Hydromantes brunus*); and (e) black toad (*Bufo boreas exsul*).

Fish and Game Code Section 5515 also identifies certain fully protected fish that cannot lawfully be taken even with an incidental take permit. The following species are protected in this fashion: (a) Colorado River squawfish (*Ptychocheilus lucius*); (b) thicktail chub (*Gila crassicauda*); (c) Mohave chub (*Gila mohavensis*); (d) Lost River sucker (*Catostomus luxatus*); (e) Modoc sucker (*Catostomus microps*); (f) shortnose sucker (*Chasmistes brevirostris*); (g) humpback sucker (*Xyrauchen texanus*); (h) Owens River pupfish (*Cyprinoden radiosus*); (i) unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*); and (j) rough sculpin (*Cottus asperrimus*).

4.4.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

In order to determine the level of significance of an identified impact, CEQA Guideline criteria were used. CEQA (Section 15065) directs lead agencies to find that a project may have a significant effect on the environment if it has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish and/or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of an endangered, rare or threatened species.

CEQA (Section 15206) further specifies that a project shall be deemed to be of statewide, regional, or area-wide significance if it would substantially affect sensitive wildlife habitats including, but not limited to, riparian lands, wetlands, bays, estuaries, marshes, and habitats for rare and endangered species.

CEQA (Section 15380) further provides that a plant or animal species, even if not on one of the official lists, may be treated as "rare or endangered" if, for example, it is likely to become endangered in the foreseeable future.

Additional criteria to assess significant impacts to biological resources due to the proposed project are specified in the CEQA Guidelines Section 15382 (Significant Effect on the Environment) "…a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."

Based on the Environmental Checklist in Appendix G of the CEQA Guidelines, a proposed project would be considered to have significant biological resource impacts if it would have:

1) A substantial adverse effect, either directly or through habitat modifications, on any special-status species;

2) A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFG or USFWS;

3) 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;

4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;

6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan; and

7) Substantially degrade the quality of the environment, substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife species to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare or threatened species.

METHODOLOGY

The impact assessment was based on the Project Description (Section 3.0), information described in the existing setting subsection, and the standards of significance described above. The impact assessment discusses impacts to implementation of the proposed General Plan. Impacts were determined by comparing existing habitat baseline data and sensitive species associations to the Orland Land Use Plan (Section 4.8, Land Use) and by determining effects that could occur through future development.

Biological Communities Assessment

The vegetation communities within the biological resource study areas were defined and mapped by merging three datasets. The communities along the Stony Creek corridor were defined and mapped based on the figures provided in the Lower Stony Creek Fish, Wildlife and Water Use Management Plan prepared by the U.S. Department of Interior, Bureau of Reclamation (1998). For most of the study area, data from the California Department of Water Resources 1998 Land Use dataset (CDWR, 2001) and National Wetlands Inventory (USFWS, 2008b) were added excluding only those portions within the Stony Creek corridor.

Figure 4.4-1 was created using ArcView by layering the data on an aerial photograph. Along the Stony Creek corridor, the biological community polygons were created using the outlines shown via the National Agriculture Imagery Program (NAIP) imagery (USDA, 2005). The NAIP acquires imagery during the agricultural growing seasons in the continental U.S. The reference ortho imagery is a mosaic of digital ortho quarter quads (DOQQs) that were used to digitize USDA Farm Service Agency common land unit boundaries. This data has not been verified with field surveys. As such, this data may be inaccurate due to the methods in which this data was obtained and the intended scale in which the data was meant to be used.

Special-status Species Assessment

Aerial photography was reviewed for determining potential habitat for special-status species identified from the literature and database searches. A species was determined to have potential to occur in the proposed Planning Area if its documented geographic range from the literature and database search includes the project vicinity and if suitable habitat for the species was identified within or near the proposed Planning Area. The CNDDB was queried for a list of special-status wildlife, plant, and fisheries resources that are known to occur in the vicinity of the Planning Area (CDFG, 2008). A database search was performed for special-status species within the Orland and Kirkwood, California USGS 7.5-minute quadrangles (1951 and 1949, respectively) and surrounding quadrangles (Foster Island, Fruto NE, Stone Valley, Black Butte Dam, Hamilton City, Willows, and Glenn, California). Locations of special-status species occurrences as recorded in the CNDDB within a one-mile radius of the proposed Planning Area are shown in **Figure 4.4-2**.

The CNPS electronic online inventory was also searched for rare or endangered plants that may occur within the proposed Planning Area. This query was performed for CNPS List 1A, List 1B, and List 2 special-status plants occurring in the USGS 7.5-minute quadrangles listed above. List 1A species are presumed extinct in California. List 1B species are considered rare or endangered in California and elsewhere. List 2 species are considered rare or endangered in California, but are more common elsewhere.

In addition, the online USFWS list for the USGS 7.5-minute quadrangles listed above was queried and reviewed for federally listed or candidate plant and animal species that could potentially be affected by the proposed action (USFWS, 2008a).

Appendix C presents the results of the CNDDB, CNPS, and USFWS queries for special-status species that have the potential to occur within the Planning Area and surrounding vicinities.

This impact analysis is organized by the significance criteria noted above: special-status plant and wildlife species, sensitive vegetation communities including wetlands, wildlife movement, and compliance with existing Habitat Conservation Plans (HCP) or other plans and policies. Each impact category includes a description of the specific potential impacts, as well as avoidance and mitigation measures that can potentially reduce and mitigate potentially significant impacts.

Specific features of the Project are briefly described below to set the context for the impact analysis. The reader is referred to Section 3.0, Project Description, for further details on the proposed General Plan.

ASSUMPTIONS

Because the exact nature of all development associated with the Land Use Plan (**Figure 4.8-1** of Section 4.8, Land Use) is not known at this time, a conservative approach was taken with the impact analysis and it was assumed that all natural resources within the proposed Planning Area could be removed, or otherwise modified, unless explicitly stated in the proposed General Plan document. Specifically, conflicts between planned land uses and mapped vegetation communities have been identified for the proposed General Plan. Although it is likely that some level of natural resources would be retained within each project parcel, the location and extent of these resources could not be determined. Therefore, this more conservative impact approach was taken to ensure that impacts would not be underestimated.

PROPOSED PROJECT

The purpose of the proposed General Plan is to review and revise the City of Orland General Plan 2003–2020 (PMC, 2003), in order to reflect upon changing conditions and issues, and to provide a direction for the future growth of the City in the next 15–20 years. The proposed General Plan is a comprehensive document that provides policies and guidelines for the future expansion and development of the community. The proposed General Plan Update states its intent as serving as a policy guide for the physical and economic growth and environmental sustainability of the City of Orland and the proposed Planning Area through the year 2028. One new land use designation, Mixed Use, is proposed in the General Plan. Furthermore, the General Plan proposes a few land use changes within the Planning Area including conversion from low density residential to light or heavy industrial; conversion from residential estate to open space/resource conservation, light industrial, or low or medium density residential; and conversion from low or medium density residential to high density residential. The overall acreage of the Planning Area increases from approximately 4,096 to 6,603 acres. The additional acreage includes an increase of 228 acres of area designated as open space/resource conservation.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Impacts to Special-Status Plant and Wildlife Species

Impact 4.4.1 Land uses and development consistent with the proposed General Plan could result in the loss of populations or essential habitat for special-status plant and animal species. This would be considered a **potentially significant** impact.

Land use and development consistent with the proposed General Plan could result in adverse impacts on special-status species or essential habitat for special-status species in the Planning Area. As indicated in **Table C-1** in **Appendix C**, the proposed Planning Area may provide habitat for a number of special-status species. Furthermore, there are two recorded occurrences of special-status species within or near the Planning Area.

Impacts to special-status species occur for a number of reasons, though primarily through increased utilization of a landscape by humans for travel (i.e., roadways), agricultural, residential, commercial, or industrial purposes, resulting in habitat fragmentation, encroachment by exotic weeds and area-wide changes in surface water flows due to development of previously undeveloped areas. Any development within areas that are currently undeveloped, including infill sites or those areas designated as open space/resource conservation, could result in impacts to habitat resources that may support special-status species. Construction of future projects could result in direct take of habitat and loss of individuals of these species.

Where there are direct impacts to special-status species, indirect impacts could occur as well. Indirect impacts include increased human/wildlife interactions and loss resulting from encroachment by exotic weeds.

As depicted in **Table 4.8-2** of Section 4.8, Land Use, of this DEIR, there were 844 acres of vacant land within the City Planning Area. According to **Figure 3.0-3** of the Project Description, some of these vacant lands are now designated for other uses such as residential, commercial, or light industrial. The actual acreage impacted would be determined by future development design proposals, which will be subject to the application of proposed General Plan policies that address protection of biological resources, as well as to further review on a project-by-project basis.

As discussed previously, further environmental review may be necessary, depending on whether the potential environmental impacts of future proposed projects within the proposed Planning Area have the potential to cause one or more direct or reasonably foreseeable indirect physical changes in the environment. This DEIR is a programmatic analysis of the broad environmental effects of the overall proposed General Plan. Goals, policies, and programs contained within the proposed General Plan would apply to all future improvement plans within the Planning Area. Future proposed projects that have the potential to cause a direct or reasonably foreseeable indirect physical change in the environment will undergo additional, project-specific CEQA review, as required by statute. Those future projects will also be subject to the FESA and CESA, as appropriate.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, and Public Facilities: Policy 5.3.A, Policy 5.3.B, Policy 5.3.C, Policy 5.3.D, Policy 5.6.A, Program 5.6.A.3, Policy 5.6.B, Program 5.6.B.1

Policy 5.3.A seeks to apply mitigation measures to development projects to minimize impacts to biological resources during all stages of development including grading, construction and occupancy, while Policy 5.3.B considers opportunities for habitat preservation, enhancement, and creation in conjunction with public facility projects, particularly storm drainage facilities. Policy 5.3.C states that applicants for new development proposals shall be responsible for costs related to determining the potential for occurrence of protected plant and wildlife species within the Planning Area. City staff shall make determination of the degree of field investigation required. If the presence of protected species is determined to be likely, the project applicant shall be responsible for all costs associated with investigating species presence and preparation of any required mitigation plans as required by Policy 5.3.D.

Policy 5.6.A ensures that new development complies with state and federal regulations and standards in order to maintain and improve water quality which maintains and improves habitat. Associated Program 5.6.A.3 seeks to ensure that new development has a minimal impact on natural drainage channels and flow capacity, while Policy 5.6.B reduces the potential for sediment and other pollutants to contaminate surface and ground water resources, thus protecting special-status species habitat. Program 5.6.B.1 maintains the natural condition of waterways and floodplains and protects watersheds.

Mitigation Measures

In addition to the policies contained in the Open Space, Conservation, and Public Facilities Element of the proposed General Plan, the following mitigation shall be implemented:

MM 4.4.1a The following measure shall be implemented as a program under Policy 5.3.A of the proposed General Plan:

Continue to require environmental review of development applications pursuant to CEQA to assess the impact of proposed development on species and habitat diversity, particularly special-status species, sensitive natural communities, wetlands, and habitat connectivity. Require adequate mitigation measures for ensuring the protection of sensitive resources.

MM 4.4.1b The following measure shall be implemented as a program under Policy 5.3.A of the proposed General Plan:

Cooperate and work with all trustee agencies and agencies with review authority pursuant to CEQA to ensure that development within the City does not substantially affect areas identified to contain or possibly support special-status species. Areas that may support special-status species include annual grassland communities, jurisdictional and isolated wetland features, agricultural communities that contain wetlands, riparian communities including oak woodlands, and drainages including rivers, streams, and creeks.

MM 4.4.1c The following measure shall be implemented as a program under Policy 5.3.A of the proposed General Plan:

For landscape plans, the City shall prepare lists of appropriate native landscape species and inappropriate invasive exotic species for use by property owners in developing landscape plans or enhancing existing landscaping, and include in the Design Guidelines. The list shall be prepared with input from the California Department of Fish and Game, Agricultural Commissioner, University of California Cooperative Extension, California Native Plant Society, and other appropriate sources to verify suitability.

MM 4.4.1d The following measure shall be implemented as a program under Policy 5.3.A of the proposed General Plan:

As part of the discretionary review of proposed development, prohibit the use of highly invasive species in landscaping. Encourage use of native or compatible non-native plant species indigenous to the site vicinity as part of the discretionary review of project landscaping. Additionally, require that landscaping improvements for community parks, trails, and other public areas include the use of native plant materials or compatible non-native plant species that recognize and enhance the natural resource setting of the City.

MM 4.4.1e The following measure shall be implemented as a program under Policy 5.3.A of the proposed General Plan:

The City shall seek to preserve wetlands, habitat corridors, sensitive natural communities, and other essential habitat areas that may be adversely affected by public or private development projects where special-status plant and animal species are known to be present or potentially occurring based on City biological resource mapping or other technical material. When identified development impacts to these habitats cannot be feasibly avoided, developers shall be responsible for mitigation. Such mitigation measures may include providing and permanently maintaining similar quality and quantity of replacement habitat, enhancing existing habitat areas, or paying fees toward an approved habitat mitigation bank. Replacement habitat may occur either on-site or at approved off-site locations.

MM 4.4.1f The following measure shall be implemented as a program under Policy 5.3.D of the proposed General Plan:

As part of the discretionary review process, a biological resources assessment shall be required to consider the impacts of proposed development projects on special-status species and/or the habitats that support these species. If

proposed development is located outside of ecologically sensitive areas, no site-specific assessment of biological resources may be necessary.

As part of the discretionary review process, biological resource assessments shall be required prior to the approval of a development within 300 feet of any river, stream, creek, wetland, or area identified to contain or possibly contain special-status plant and/or animal species, as determined by the City, City biological resource mapping and data provided in the General Plan DEIR, or other technical material. The biological resources assessment shall determine the presence/absence of these special-status plant and/or animal species on the site. The surveys associated with the assessment shall be conducted during the appropriate seasons for proper identification of the species. The assessment will consider the potential for significant impacts on special-status plant and/or animal species and will identify feasible mitigation measures to mitigate such impacts to the satisfaction of the City and appropriate governmental agencies (e.g., U.S. Fish and Wildlife Service and California Department of Fish and Game). These required mitigation measures of impacts will ensure that future projects do not contribute to the decline of the affected species such that their decline would impact the viability of the species.

Mitigation measures on a project-by-project basis may include the following:

- For special-status plant species: preservation of existing populations from direct and indirect impacts, and seed and soil collection that ensures that the plant population is maintained.

- For special-status animal species: avoidance of the species and its habitat as well as the potential provision of habitat buffers, avoidance of the species during nesting or breeding seasons, replacement or restoration of habitat on- or off-site, relocation of the species to another suitable habitat area presently uninhabited by the species, or payment of mitigation credit fees.

- Participation in a habitat conservation plan.

MM 4.4.1g The following measure shall be implemented as a policy under Goal 5.3 of the proposed General Plan:

Protect sensitive biological resources and habitat corridors through environmental review of development applications in compliance with CEQA provisions, participation in comprehensive habitat management programs with other local and resource agencies, and continued acquisition and management of open space lands that provide for permanent protection of important natural habitats.

Implementation of these mitigation measures and the above General Plan policies and programs as well as project-by-project environmental review as described above would substantially reduce and/or avoid direct and indirect impacts to special-status species within the City Planning Area. Therefore, implementation of the proposed General Plan would result in impacts to special-status species that are **less than significant**.

Impacts to Sensitive Natural Communities

Impact 4.4.2 Land uses and development consistent with the proposed General Plan could result in the loss of riparian habitat or other sensitive natural communities. This would be considered a **potentially significant** impact.

Implementation of the proposed General Plan would result in disturbance, degradation, and removal of riparian, valley oak woodland, and wetland habitats. The majority of habitats are found outside City boundaries yet within the City Planning Area (**Figure 4.4-1**). These habitats are considered to be sensitive natural communities by the California Department of Fish and Game.

Riparian habitat supports a high diversity of wildlife species and provides shade for streams and wetlands, maintaining stream temperatures and reducing stream evaporation. Riparian ecosystems and associated diversity requires a minimum of a 100-foot setback (Ledwith, 1996). The benefits of riparian corridor buffers increase if they are adjacent to larger tracts of conserved land.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, and Public Facilities: Policy 5.3.A, Policy 5.3.B, Policy 5.3.C, Policy 5.3.D, Policy 5.6.A, Program 5.6.A.3, Policy 5.6.B, Program 5.6.B.1

Policy 5.3.A seeks to apply mitigation measures to development projects to minimize impacts to biological resources during all stages of development including grading, construction, and occupancy, while Policy 5.3.B considers opportunities for habitat preservation, enhancement, and creation in conjunction with public facility projects, particularly storm drainage facilities. Policy 5.3.C states that applicants for new development proposals shall be responsible for costs related to determining the potential for occurrence of protected plant and wildlife species within the proposed Planning Area. The sensitive natural communities listed above (riparian, valley oak woodland, and wetlands) have the potential to support many protected species, thus protecting sensitive habitat protects these species of concern. Policy 5.3.D requires that the project applicant shall be responsible for all costs associated with investigating the presence of protected species and the preparation of any required mitigation plans.

Policy 5.6.A ensures that new development complies with state and federal regulations and standards in order to maintain and improve water quality which maintains and improves sensitive habitat. Associated Program 5.6.A.3 seeks to ensure that new development has a minimal impact on natural drainage channels and flow capacity, while Policy 5.6.B reduces the potential for sediment and other pollutants to contaminate surface and ground water resources, thus protecting sensitive natural habitat. Program 5.6.B.1 maintains the natural condition of waterways and floodplains and protects watersheds.

Mitigation Measures

In addition to the policies and programs contained in the Open Space, Conservation, and Public Facilities Element of the proposed General Plan, and mitigation measures **MM 4.4.1a** through **MM 4.4.1g** described under Impact 4.4.1, the following mitigation measures are identified:

MM 4.4.2a The following measure shall be implemented as a program under Policy 5.3.A of the proposed General Plan:

The City of Orland should encourage the retention of large or otherwise significant trees both in residential, non-residential, and open space areas by:

- Encouraging or revising development plans to retain trees.
- Revising development plans that would remove significant trees so that those trees are saved.
- Minimizing development impact on trees with standards to minimize damage during construction and provisions to assure that building foundations, utilities, walkways, irrigation, or use patterns will not damage root structures or trunks.

In instances when the retention of large or otherwise significant trees (i.e., native oak trees) in residential, non-residential, and open space areas is infeasible and their removal is unavoidable, project developers shall be responsible for mitigation. All required tree mitigation shall conform to the following guidelines:

- On-site mitigation through tree replacement is the preferred mitigation method.
- The location and condition under which replacement trees are planted must be carefully selected to allow for practicable and feasible future development to minimize the likelihood that future tree removal is not required, and to maximize the likelihood that the replacement trees will survive and thrive.
- Provide appropriate replacement of lost large or otherwise significant trees (native oak trees) or preservation at a 2:1 ratio for habitat loss.
- Transplanted trees, whether from on-site or off-site, may be accepted as replacement trees, but shall be given a discounted value, based on anticipated survival rates, as compared with nursery stock. The discounted value specified in the guidelines shall be reviewed from time to time.
- Any replacement tree, including a transplanted tree, which dies within five years of being planted must be replaced on a one to one basis.
- Where mitigation formulas use percentages, results will always be rounded up to the next whole number percentage.

MM 4.4.2b The following measure shall be implemented as a policy under Goal 5.3 of the proposed General Plan:

Maintain and expand the tree canopy through consideration of tree protection standards.

The following measure shall be implemented as a program under the preceding policy:

Encourage and cooperate with other responsible agencies to plan and implement an integrated management plan for the long-term conservation and restoration of riparian corridors within the City's Planning Area.

MM 4.4.2c The following measure shall be implemented as a policy under Goal 5.3 of the proposed General Plan:

The City shall make every effort to protect remaining riparian vegetation along Stony Creek, Hambright Creek, and their tributaries within the Planning Area. To this end, projects with discretionary approval shall provide a minimum 100-foot buffer from Stony Creek and Hambright Creek, and a 50-foot buffer from their primary tributaries. The buffer shall be measured outward from the top of each bank. Constructed canals and ditches are excluded from this buffer requirement. The City may provide for variances to these standards in existing developed areas and other areas where the provision of such buffers is not feasible. Development shall not occur within these buffers, except as part of greenway enhancement to include trails and bikeways. Impacts associated with these potential variances and/or greenway enhancements shall be mitigated by developers. Such mitigation measures may include providing and permanently maintaining similar quality replacement habitat at a 1:1 ratio for habitat loss.

MM 4.4.2d The following measure shall be implemented as a policy under Goal 5.3 of the proposed General Plan:

Design public access to avoid or minimize disturbance to sensitive resources, including necessary buffer areas, while facilitating public use, enjoyment, and appreciation of wetlands.

MM 4.4.2e The following measure shall be implemented as a policy under Goal 5.3 of the proposed General Plan:

Protect wetlands through careful environmental review of proposed development applications. Recognize the U.S. Army Corps of Engineers as the designated permitting agency that regulates wetlands.

The following measure shall be implemented as a program under the preceding policy:

Require development proponents to submit detailed assessments of sites with wetlands pursuant to CEQA and to demonstrate compliance with state and federal regulations. Assessments shall be conducted by a qualified professional to determine wetland boundaries and the presence of sensitive resources including endangered and special-status species and their habitat, to assess the potential impacts, and to identify measures for protecting the resource and surrounding buffer habitat. Assessments will delineate and map waters of the United States, including wetlands and open water habitats, and will make recommendations for avoidance. Wetlands and waters of the United States shall be identified in delineations approved by the U.S. Army Corps of Engineers.

The following measure shall be implemented as a program under the preceding policy:

Restrict or modify proposed development in areas that contain wetlands, as defined by U.S. Army Corps of Engineers delineations, as necessary to ensure the continued health and survival of special-status species and sensitive areas. Development projects shall preferably be modified to avoid impacts on sensitive resources or to adequately mitigate impacts by providing on-site replacement or (as a lowest priority) off-site replacement at a higher ratio.

The following measure shall be implemented as a program under the preceding policy:

The City shall require the project proponent to obtain all necessary permits pertaining to affected waters of the United States, including wetland habitat, stream channels, and open water habitats regulated by the California Department of Fish and Game and/or the Central Valley Regional Water Quality Control Board prior to construction. Grading or other construction activities within streambeds or open waters may require streambed alteration agreements from the California Department of Fish and Game. Discharge of fill into waters of the United States will require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers and Clean Water Act Section 401 certification from the Central Valley Regional Water Quality Control Board. The permitting process will also require compensation for construction impacts.

The following measure shall be implemented as a program under the preceding policy:

Where complete avoidance of wetlands is not possible, require provision of on-site replacement habitat through restoration and/or habitat creation at an appropriate ratio determined through consultation with the U.S. Army Corps of Engineers, provided that no net loss of wetland acreage, function, and habitat values occurs. Allow restoration of wetlands off-site only when an applicant has demonstrated that no net loss of wetlands would occur and that on-site restoration is not practical or would result in isolated wetlands of extremely limited value. Off-site wetland mitigation preferably would consist of the same habitat type as the wetland area that would be lost.

Implementation of the above General Plan policies and programs as well as mitigation measures **MM 4.4.1a** through **4.4.1g** and **MM 4.4.2a** through **MM 4.4.2e** would ensure that impacts to sensitive biotic communities in the General Plan Planning Area would be **less than significant**.

Furthermore, environmental review as described above would ensure that adequate mitigation measures will be identified for future projects on a case-by-case basis that will help to minimize specific impacts to sensitive habitat acreage, values, and function.

Impacts to Waters of the U.S., Including Wetlands

Impact 4.4.3 Land uses and development consistent with the proposed General Plan could result in the loss of jurisdictional waters of the U.S, including wetlands. This would be considered a **potentially significant** impact.

Jurisdictional waters of the U.S. provide for a variety of functions for plants and wildlife within the City Planning Area. Jurisdictional waters provide habitat, foraging, cover, migration and movement corridors, and water sources for both special-status and other species. In addition to habitat functions, jurisdictional waters provide physical conveyance of surface water flows as well as channels for the handling of large stormwater events. Large storms can produce extreme flows that cause bank cutting and sedimentation of ephemeral drainage and water bodies such as open water and streams in the proposed General Plan Planning Area. Jurisdictional waters found within the proposed Planning Area can slow these flows and lessen the effects of these large storm events, protecting habitat and other resources.

Waters of the U.S., including wetlands, may be negatively affected by residential and commercial development and agricultural and forest management practices. Modifications to waters of the U.S. can alter existing watersheds and their hydrologic functions, including flood attenuation. Conversely, changes to hydrologic inputs and outflow of wetlands (e.g., culvert placement) can alter the size and function of wetlands.

Implementation of the proposed General Plan, including development of proposed land uses, associated infrastructure, and roadway construction and improvements, may result in direct and indirect impacts to jurisdictional waters within the City Planning Area. Impact 4.4.2 above contains more information regarding the possible direct and indirect impacts to biological communities due to implementation of the proposed General Plan.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, and Public Facilities: Policy 5.3.A, Policy 5.3.B, Policy 5.3.C, Policy 5.3.D, Policy 5.6.A, Program 5.6.A.3, Policy 5.6.B, Program 5.6.B.1

Policy 5.3.A seeks to apply mitigation measures to development projects to minimize impacts to biological resources during all stages of development including grading, construction and occupancy, while Policy 5.3.B considers opportunities for habitat preservation, enhancement, and creation in conjunction with public facility projects, particularly storm drainage facilities. Policy 5.3.C states that applicants for new development proposals shall be responsible for costs related to determining the potential for occurrence of protected plant and wildlife species within the proposed Planning Area. The sensitive natural communities listed above (riparian, valley oak woodland, and wetlands) have the potential to support many protected species, thus protecting wetland habitat protects these species of concern.

Policy 5.6.A ensures that new development complies with state and federal regulations and standards in order to maintain and improve water quality which maintains and improves sensitive habitat. Associated Program 5.6.A.3 seeks to ensure that new development has a minimal impact on natural drainage channels and flow capacity, while Policy 5.6.B reduces the potential for sediment and other pollutants to contaminate surface water resources, thus protecting sensitive natural habitat. Program 5.6.B.1 maintains the natural condition of waterways and floodplains and protects watersheds.

Loss of jurisdictional waters and wetlands resulting from implementation of the proposed General Plan would be considered potentially significant unless mitigation is incorporated. The incorporation of the policies and programs listed above as well as mitigation measures **MM 4.4.1a** through **MM 4.4.1g, MM 4.4.2d,** and **MM 4.4.2e** would mitigate impacts to waters of the U.S., including wetlands, would result in no net loss of wetlands, and would therefore reduce potential impacts to jurisdictional waters and wetlands to a **less than significant** level.

Mitigation Measures

None required.

Wildlife Corridors

Impact 4.4.4 Land uses and development consistent with the proposed General Plan could restrict aquatic or terrestrial wildlife movement through travel corridors. This would be considered a **potentially significant** impact.

Migratory birds may however use the rivers, creeks, and other natural habitats in the Orland region during migration. Furthermore, open space provides an opportunity for dispersal and migration of wildlife species. The primary travel corridors available in the City Planning Area include the riparian and riverine habitats which provide adequate cover and vegetation to be used as a migratory corridor for common and special-status fish and wildlife species. Implementation of the proposed General Plan may result in disturbance, degradation, and removal of important corridors for the movement of common and special-status wildlife species. This would be considered a potentially significant impact unless mitigation is incorporated.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, and Public Facilities: Policy 5.3.A, Program 5.6.A.3, Policy 5.6.B, Program 5.6.B.1

The incorporation of the policies and programs described above as well as mitigation measures **MM 4.4.1a, MM 4.4.1b, MM 4.4.1e, MM 4.4.1f, MM 4.4.1g,** and **MM 4.4.2b** would mitigate impacts to wildlife movement corridors and would therefore reduce potential impacts to wildlife corridors to a **less than significant** level.

Mitigation Measures

None required.

Conflicts with Local Policies or Ordinances (i.e., Habitat Conservation Plans or Natural Community Conservation Plans)

Impact 4.4.5 Proposed policies in the proposed General Plan that affect biological resources may differ from local policies and ordinances currently in effect. However, potential conflicts would be addressed by the revisions of the implementing ordinances to ensure that they conform to the proposed policies. This would be considered a **less than significant** impact.

No habitat conservation plans (HCPs) or natural community conservation plans (NCCPs) occur within the Planning Area. Land uses and development consistent with the proposed General Plan would not conflict with any adopted Habitat Conservation Plan, Natural Community

Conservation Plan, or other approved conservation plan. However, the proposed General Plan would update policies regarding biological resources, particularly those related to riparian corridors, wetlands, special-status species, sensitive natural communities, and wildlife movement corridors, which could potentially lead to conflicts between the proposed General Plan and the existing City Zoning Code. Upon adoption of the new policies contained within the proposed General Plan, as well as the policies and mitigation measures proposed above, applicable City ordinances would be required to be updated to conform to the policies of the proposed General Plan.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Land Use: Program 2.1.A.3

Land Use Element Program 2.1.A.3 states that upon completion of Zoning Ordinance revisions, the City must revise zoning as necessary to achieve consistency between the General Plan and zoning designations within the City.

While no existing HCPs or NCCPs occur within the Planning Area, the above-listed program reduces impacts to other potential policy and/or ordinance conflicts to a less than significant level. As a result, this impact would be considered **less than significant**.

Mitigation Measures

None required.

4.4.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The City of Orland and the surrounding area of Glenn County as a whole must be considered for the purpose of evaluating land use conversion issues associated with biological resources on a cumulative level. In particular, this cumulative setting condition includes the proposed and approved projects listed in **Table 4.0-7** (see Section 4.0, Introduction to the Environmental Analysis and Assumptions Used), existing land use conditions and planned development under both the proposed General Plan and the current Land Use Element of the 2003 Orland General Plan, and planned and proposed land uses and development patterns in communities near the City.

Cumulative Biological Impacts

Impact 4.4.6 The proposed project, in combination with other reasonably foreseeable projects, would result in direct mortality and loss of habitat for special-status species, and loss of waters of the U.S., including wetlands. This would be a **cumulatively considerable** impact.

The vegetation communities/habitats in the City of Orland region are critically important for the protection of several sensitive species. Implementation of the proposed General Plan may result in degradation of wildlife habitat through a variety of actions which, when combined with other habitat impacts occurring from development within surrounding areas, would result in significant cumulative impacts. Future development within the City of Orland and the surrounding vicinity would have an unknown and unquantifiable impact on special-status species, biologically sensitive habitats, and potentially jurisdictional features (wetlands and waters of the U.S.). The

loss of wetlands and riparian forest along the Stony Creek and Hambright Creek corridor within the Planning Area would result in a decline in water quality condition, which may result in adverse effects to downstream aquatic resources and riparian habitat. Furthermore, increased development and disturbance created by human activities (e.g., fires, wildlife struck by horse or bike, increased nighttime lighting) would result in direct mortality, habitat loss, and deterioration of habitat suitability. These impacts are considered **cumulatively considerable**.

Mitigation Measures

Implementation of the proposed General Plan policies, programs, and mitigation measures discussed under Impacts 4.4.1 through 4.4.5 will reduce the proposed General Plan's impacts to these resources to a less than significant level through either resource avoidance or replacement measures. Therefore, the project's cumulative contribution to impacts on these resources would be reduced to a **less than cumulatively considerable** level.

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4.5 CULTURAL RESOURCES

This section of the City of Orland General Plan Draft Environmental Impact Report (DEIR) considers and evaluates the potential impacts of the proposed project on cultural and paleontological resources. Cultural resources include historic buildings and structures, historic districts, historic sites, prehistoric and historic archaeological sites, and other prehistoric and historic objects and artifacts. Paleontological resources include vertebrate, invertebrate, or plant fossils.

CONCEPTS AND TERMINOLOGY FOR EVALUATION OF CULTURAL RESOURCES

The following definitions are common terms used to discuss the regulatory requirements and treatment of cultural resources:

- *Cultural resources* is a term used to describe several different types of properties: prehistoric and historical archaeological sites; architectural properties such as buildings, bridges, and infrastructure; and resources of importance to Native Americans.

- *Historic properties* is a term defined by the National Historic Preservation Act (NHPA) as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register of Historic Places (NRHP), including artifacts, records, and material remains related to such a property.

- *Historical resources* is a California Environmental Quality Act (CEQA) term that includes buildings, sites, structures, objects, or districts, each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance, and is eligible for listing or is listed in the California Register of Historical Resources (CRHR).

- *Paleontological resources* is defined as fossilized remains of vertebrate and invertebrate organisms, fossil tracks and trackways, and plant fossils. A unique paleontological site would include a known area of fossil bearing rock strata.

4.5.1 EXISTING SETTING

PREHISTORY

Previous systematic archaeological investigations in the northern Sacramento Valley were primarily conducted in response to proposed reservoir developments and highway construction projects. For example, in the late 1950s and early 1960s programs of archaeological survey and salvage excavation were initiated in response to the construction of Shasta, Whiskeytown, and Trinity reservoirs. The majority of this work was conducted by San Francisco State College under the direction of Adan Treganza (1958, 1959; Treganza and Heicksen, 1960). This work was followed by more recent investigations at Whiskeytown (Baker, 1984); near Squaw Creek (Clewett and Sundahl, 1983); in the Redding area (Sundahl, 1982); and in the upper Sacramento River Canyon (Basgall and Hildebrandt, 1989; Raven et al., 1984). Similarly, the earliest archaeological work in closer proximity to the Planning Area was conducted in advance of reservoir projects.

These projects included work at Black Butte Reservoir (Mohr and Fredrickson 1949); Red Bank Creek (Treganza 1954); the Tehama-Colusa Canal (Treganza et al., 1965); the proposed Paskenta-Newville Reservoir (Chartkoff and Childress 1966); Black Butte Reservoir (Treganza and Heicksen, 1969); and the proposed Dutch Gulch Reservoir (Leonard, 1969). In the 1970s, archaeological survey and excavation work continued in the area with investigations along Thomes Creek (Edwards, 1970) and surveys for Tehama and Dutch Gulch reservoirs (Jensen,

1978). Indeed, archaeological work related to reservoir construction continued into the 1980s, with investigations for the Thomes-Newville Reservoir (Bard et al. 1983) and a succession of projects at Black Butte, Dutch Gulch, and Tehama reservoirs conducted by California State University, Sacramento under the direction of Jerald Johnson (Dondero and Johnson, 1988; Johnson and Theodoratus, 1984a, 1984b; Johnson et al., 1984; Johnson, 1990; Johnson and Dondero, 1990).

The last two decades of northern Sacramento Valley archaeology have witnessed the development of classification schemes that attempted to place assemblages of cultural material in specific temporal and spatial contexts. Many of these schemes also attempt to associate artifact assemblages with specific groups and/or settlement/subsistence strategies. Progress, however, in refining the basic chronology of the region, including the initial and terminal dates of specific artifact classes and types, such as projectile points and ground stone, has been slow. The process has tended to be slow because many artifact type names (e.g., Desert side-notched and Gunther-barbed projectile points) and their associated chronologies used in the region have wide geographic distributions. This situation has impeded intra- and inter-regional comparisons of artifact types and assemblages and the development of chronological sequences specific to the region. Regardless, a number of individuals have presented cultural sequences for the region.

Edwards (1970) developed a three-phase cultural chronology that begins with early occupations dominated by the use of millingstones and locally available stone tool materials (i.e., basalt and chert). The subsequent Tehama Phase, which Edwards dates at A.D. 0 to 1000, appears to represent an increased reliance on acorns, as evidenced by the addition of mortars and pestles to the artifact assemblage for the phase. The late prehistoric Shasta Complex was poorly represented in Edwards' data, so he based this phase on archaeological data from the Shasta Dam area (cf., Treganza, 1952; Smith and Weymouth, 1952; Meighan, 1955). Regardless, subsequent excavations by Jensen and Reed (1979) and Sundahl (1982) have expanded our understanding of the Shasta Complex.

Sundahl's (1982) work on the Shasta Complex represents the first comprehensive attempt to explain the origin, development, and distribution of the complex. She (1982) divided the Shasta Complex into three temporal phases based on the presence and absence of various assemblage attributes. The earliest phase dates from 1250-750 Before Present (B.P.); the second phase from 750-350 B.P.; and the final phase from 350-100 B.P. Sundahl concluded, based on an analysis of data from excavated sites in the Redding area and linguistic data collected by Whistler (1977), that sites containing all the assemblage attributes associated with the Shasta Complex were restricted to ethnographic Wintu territory. She also suggested that the Shasta Complex most likely represents the Wintu migration into the upper Sacramento Valley. Clewett and Sundahl (1982a and 1982b) expanded this hypothesis and suggest a cultural distinction between permanent, riverine villages of the Wintu west of the Sacramento River represented by Shasta Complex sites and contemporaneous seasonally occupied sites of the mobile ethnographic Yana along the east banks of the Sacramento River and eastern foothills of the Sacramento Valley represented by the Tehama Pattern. Differences in milling equipment were one of the characteristics used to distinguish the Shasta Complex (with its emphasis on mortars and pestles and absence of manos and millingstones) from the Tehama Pattern (which relied on manos and millingstones, with an absence of mortars and pestles).

Basgall and Hildebrandt (1989) propose another cultural chronology for the northern Sacramento River Canyon. They conducted the first archaeological study in the region that cross-dated projectile point types, obsidian hydration data, radiocarbon assays, and dendrochronology. Basgall and Hildebrandt used these data sets to establish a three-phase

chronology for the Sacramento River Canyon. The three phases are the Pollard Flat Phase (2700-5300 B.P.), which is characterized by Squaw Creek Contracting Stem, Pollard Diamond-shaped and McKee series projectile points, and formal groundstone tools that have been shaped or slightly shaped, battered stones, anvils, mauls, and net weights; Vollmers Phase (1700-4500 B.P.), which is characterized by medium size Clikapudi corner-notch and side-notch points, informal groundstone tools and indeterminate fragments, battered stones, anvils, mauls, and net weights; and Mosquito Creek Phase (1900 B.P. to contact), which is characterized by Gunther series points, the appearance of Desert Side-notched points in the late phase, groundstone dominated by expedient, indeterminate fragments, and an absence of shaped tools such as handstones, millingstones, hammerstones, anvils, mauls, and net weights.

Basgall and Hildebrandt (1989) also characterize their sequence in terms of subsistence/settlement patterns and population movements. The Pollard Flat Phase is representative of a forager population that occupied residential base camps for extended periods of time. Vollmers Phase populations were more mobile but still maintained residential base camps that were occupied for shorter periods of time than Pollard Flat residential base camps. The Mosquito Creek Phase population comprised small groups that employed a pattern of seasonal transhumance. Basgall and Hildebrandt (1989) attribute the Pollard Flat and Vollmers Phases to two distinct populations that coexisted for over 1,000 years in the Sacramento River Canyon. The Pollard Flat people, who originally controlled the canyon, were eventually replaced by the Vollmers population. They also suggest that there may have been strong ethnic continuity between the Vollmers and Mosquito Creek peoples. They do not attribute the Mosquito Creek Phase, however, to the arrival of the Wintu. Basgall and Hildebrandt do not attempt to determine ethnolinguistic affiliations for these phases.

Sundahl (1993) recently proposed a four-phase cultural chronology for the Northern Sacramento River Valley based on the excavation of three sites in the Bend area of Tehama County. Her model identifies specific artifact assemblages and adaptive strategies for each of the four phases. Phase I, dated from 2500 B.P. to 1500 B.P., is characterized by large corner-notched and leaf-shaped projectile points. Phase II, dated from 1500 B.P. to 800 B.P., is characterized by small corner-notched projectile points, handstones, millingstones, hopper mortars, pestles, notched-pebble net weights, and large numbers of cores, cobble tools, and edge-modified flakes of metavolcanic or basaltic material (Sundahl, 1993). Phase III, beginning around 800 B.P., is characterized by the addition of Gunther Series projectile points to the Phase II artifact assemblage. Sundahl (1993) identifies but does not characterize Phase IV. Sundahl (1993) also characterizes her four-phase sequence in terms of subsistence/settlement patterns. She suggests that the Phase I pattern may represent the ancestral Yana or other Hokan-speaking groups that occupied sites along the east bank of the Sacramento River and focused on the exploitation of terrestrial fauna. Sundahl does not speculate on population movement or adaptive strategies for Phases II or IV, but she suggests that Phase III reflects interactions between Wintu and Yana populations. In summary, the chronology of the northern Sacramento Valley has been refined through time, but questions still persist regarding patterns of prehistoric settlement and subsistence in the region.

ETHNOGRAPHY

Prior to the arrival of Euroamericans in the region, California was inhabited by groups of Native Americans speaking more than 100 different languages and occupying a variety of ecological settings. Kroeber (1925, 1936) subdivided California into four subculture areas, Northwestern, Northeastern, Southern, and Central. Orland is in Kroeber's Central Area within Nomlaki territory. Nomlaki, a division of the Wintu, occupied a territory that extended from the vicinity of Cottonwood Creek in the north to Glenn County in the south and from the crest of the Coast

Range in the west past the Sacramento River in the east (Goldschmidt, 1978). There were two distinct divisions of Nomlaki: the Hill Nomlaki and the River Nomlaki. The Hill Nomlaki occupied the areas to the west and south in the foothills. The primary ethnographic source for Nomlaki is Goldschmidt (1951). He conducted fieldwork among Nomlaki in the 1930s. Goldschmidt's informants were primarily affiliated with the Hill Nomlaki. The following ethnographic context is adapted from Goldschmidt (1951 and 1978), unless otherwise cited.

Nomlaki exploited a wide variety of seasonally available resources that were distributed across the landscape. Plant resources used by Nomlaki include acorns, seeds, tubers, clover, pine nuts, berries, and mushrooms. Plant resources were primarily gathered, stored, and prepared by women. Animal resources used by Nomlaki include deer, elk, antelope, rabbit, squirrel, and rat. Anadromous and other fish were also important food resources. Fish were caught by hand, net, weir, or trap. Men hunted animal resources either individually or in groups.

Nomlaki used a variety of tools and facilities to exploit both terrestrial and aquatic resources including sinew-backed bows or bows of imported yew; wooden arrow shafts; knotted mahogany clubs; harpoons; stone and bone knives; projectile points and other flaked stone tools made from chert or obsidian that was obtained through trade; nets; snares; slings; fish traps baskets for food and water collection, food storage, and food preparation; and pestles and mortars. Nomlaki pestles were primarily made by men and were finished by rubbing them against bedrock that formed channels in the bedrock. Mortars are typically found in bedrock outcrops, abundant in creek beds, but portable mortars were also used by Nomlaki. Nomlaki wore clothing, robes, and blankets made of various animal skins and bark.

Nomlaki were divided into local groups centered in a village or *kewel*. A typical village consisted of a chieftain's house, family houses surrounding the chieftain's house, a dance house, and a menstrual hut that was placed on the side of the village opposite the water source. Population size varied among villages ranging from 25 inhabitants to over 200 occupying 5 to 50 family houses. Group activities included smoking, storytelling, dancing, and gambling. The position of chieftain *(cabatu)* was hereditary, although men in a village could voice an opinion regarding a change in succession of a chieftain. The chief's status derived from his personal qualifications and from his wealth. His position also exempted him from strenuous manual labor (DuBois, 1935). Villages were commonly located near springs or along creeks. Many villages also claimed territory at higher elevations that could be occupied during hot summer months.

Trade among Nomlaki was common and integral to their survival. They primarily engaged in three exchange systems: internal or trading between neighbors, east-west trading, and north-south trading. Internal trading included families exchanging utilitarian items. This economic activity occurred as required by individuals in a village and was conducted in a rather casual manner. In addition, the chief could facilitate the supply of utilitarian items by acquiring them and selling them, as necessary, to village inhabitants.

The second exchange system, east-west trade, was conducted between Hill Nomlaki and River Nomlaki. These two groups exchanged resources easily accessible to each group for resources that could not be easily obtained in their respective territories. For example, River Nomlaki traded riverine resources such as salmon for acorns and other resources more common in Hill Nomlaki territory. The primary medium of exchange in these transactions appears to be shell money and/or other valuable items. East-west economic exchanges also included trading with Yuki for salt.

The third exchange system, north-south trade, was extensive, ranging from San Francisco Bay to Shasta Wintu territory. Clamshell disks moved from the south to the north, and obsidian, animal

pelts, and yew wood moved from the north to the south. Nomlaki contributed salt and magnesite beads to this exchange system. Magnesite beads were used by all Wintu groups and were greatly valued. Regardless of the items contributed to the exchange system by Nomlaki, they primarily profited by being located in the middle of the system. Nomlaki acted as middlemen in the exchange system and could affect the supply of goods flowing in either direction. Nomlaki would also convert raw materials from the north or south into usable or more valuable items and take a profit from the groups to whom they were trading the items. Consequently, participation in and continuation of the north-south exchange system was an important and lucrative economic activity among Nomlaki.

Nomlaki usually buried their dead in areas approximately 1,000-1,200 feet from a village. Nomlaki cemeteries were occasionally shared by more than one village. Circular graves were dug to a depth of 3-4 feet using a mahogany stick. The body of the deceased individual was tightly flexed, pushing the head between the knees and folding the hands at the sides. Next, the body was bound tightly with sinew rope and wrapped in black bear hide, which was highly prized for this purpose, whenever possible. Finally, a net was wrapped around the bundle and the individual was placed in the grave. Most of the personal belongings of the deceased were burned, but items such as beads and ornaments could be buried with an individual. Burials were usually accompanied by wailing and mourning.

HISTORIC PERIOD

Euroamerican contact with Native American groups living in the Central Valley of California began during the last half of the eighteenth century. At this time, the attention of Spanish missionaries shifted away from the coast, and its dwindling Native American population, to the conversion and missionization of interior populations. Indeed, Luis Argüello led an early expedition into the area in 1821 ,Beck and Haase 1974). The expedition left San Francisco and followed a northerly course to the Sacramento River, intersecting the river a short distance north of Grimes. The group then followed the river north to Cottonwood Creek, passing through Nomlaki, Patwin, and Konkow territory. Regardless, the area remained relatively unoccupied by Euroamericans until the Gold Rush.

The Mexican period (ca. 1821-1848) in California is an outgrowth of the Mexican Revolution and is highlighted by the issuance of land grants called *ranchos* by the Mexican government. The *ranchos* facilitated the growth of a semi-aristocratic group that controlled large *ranchos.* Owners of *ranchos* used local populations, including Native Americans, essentially as forced labor to accomplish work on their large tracts of land. Consequently, Native American groups across California were forced into a marginalized existence as *peons* or *vaqueros* on large *ranchos*. *Ranchos* near the Planning Area include the Larkin Children's Rancho, Capay [Tehama], and Jacinto (Beck and Haase, 1974).

The end of the Mexican-American War and the signing of the Treaty of Guadalupe Hidalgo in 1848 marked the beginning of the American period (ca. 1848-Present) in California history. The onset of this period, however, did nothing to change the economic condition of the Native American populations working on the *ranchos*. The *rancho* system generally remained intact until 1862–1864, when a drought forced many landowners to sell off or subdivide their holdings. Regardless of a change in economic focus, the plight of Native American populations remained, at best, relatively unchanged (e.g., the U.S. Senate rejected treaties between the government and Native Americans in 1851 and 1852, and military reserves were established to maintain various groups) (Heizer, 1974). The latter half of the nineteenth century witnessed an ongoing and growing immigration of Euroamericans into the area, an influx also accompanied by regional cultural and economic changes. These changes are highlighted by the

development of towns and businesses associated with either gold mining or agriculture and a dramatic decline of Native American culture and people.

Glenn County, named after Dr. Hugh J. Glenn, was established in 1891 subsequent to its separation from Colusa County. Glenn came to California in 1849 and originally worked a mining claim (Hoover et al., 2002). Glenn, however, soon became interested in agriculture and purchased large tracts of land for the production of wheat. He farmed 55,000 acres of land and became known as the "Wheat King" before his death in 1883 (Hoover et al., 2002). Orland was named after a town in England in 1875. The post office was established on May 5, 1875. Orland was incorporated in 1909 and is the largest of the two cities in Glenn County.

KNOWN CULTURAL RESOURCES IN THE CITY OF ORLAND PLANNING AREA

Archaeological and historical investigations for the current Project identified 49 cultural resources within the City of Orland Planning Area. Cultural resources in the City of Orland include historic buildings, irrigation canals, bridges, and a segment of the Southern Pacific Railroad within the Planning Area. None, however, are listed on the National Register of Historic Places or the California Register of Historical Resources. In 2008 and 2009, the 'Hicks Building (Booth Hotel) and the 'Alta Schmidt Museum' were approved by the City Council as cultural resources of Local Historical Significance.

No prehistoric resources were noted within the City of Orland General Plan Planning Area. One "prehistoric" site was noted in 2001 (Furry, 2001) but was dismissed as an archaeological site upon further examination (Eco-Systems, 2004). However, only approximately 5 percent of the Planning Area, including the length of Stony Creek within the Planning Area, has been surveyed. Therefore, the potential for prehistoric resources remains high due to the close proximity of water resources such as Stony Creek.

KNOWN PALEONTOLOGICAL RESOURCES IN THE CITY OF ORLAND PLANNING AREA

Paleontology is defined as a science dealing with the life of past geological periods as known from fossil remains. Paleontological resources include fossil remains, as well as fossil localities and formations that have produced fossil material. Such locations and specimens are important nonrenewable resources. CEQA offers protection for these sensitive resources and requires that they be addressed during the EIR process.

A search of the University of California Museum of Paleontology (UCMP) collections database identified 21 paleontological resources in Glenn County. These resources primarily consist of vertebrates and invertebrates. The database search did not identify any paleontological resources in the Planning Area, and the geography and geology of the area suggest that it is not sensitive for paleontological resources.

4.5.2 REGULATORY FRAMEWORK

STATE

California Environmental Quality Act

Under CEQA, public agencies must consider the effects of their actions on both "historical resources" and "unique archaeological resources." Pursuant to Public Resources Code (PRC) Section 21084.1, a "project that may cause a substantial adverse change in the significance of

an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether proposed projects would have effects on unique archaeological resources.

"Historical resource" is a term with a defined statutory meaning (PRC, Section 21084.1 and State CEQA Guidelines, Section 15064.5 [a], [b]). The term embraces any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be historical resources for purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC, Section 5024.1 and California Code of Regulations, Title 14, Section 4850). Unless a resource listed in a survey has been demolished, lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

In addition to assessing whether historical resources potentially impacted by a proposed project are listed or have been identified in a survey process (PRC 5024.1 [g]), lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a proposed project's impacts to historical resources (PRC, Section 21084.1 and State CEQA Guidelines, Section 15064.5 [a][3]). Following CEQA Guidelines Section 21084.5 (a) and (b), a historical resource is defined as any object, building, structure, site, area, place, record, or manuscript that:

1) Is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California; and

2) Meets any of the following criteria:

    a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

    b. Is associated with the lives of persons important in our past;

    c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

    d. Has yielded, or may be likely to yield, information important in prehistory or history.

Archaeological resources may also qualify as historical resources, and PRC 5024 requires consultation with the Office of Historic Preservation when a project may impact historical resources located on State-owned land.

For historic structures, State CEQA Guidelines Section 15064.5, subdivision (b)(3), indicates that a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for

Rehabilitating Historic Buildings (1995) shall mitigate impacts to a level of less than significant. Potential eligibility also rests upon the integrity of the resource. Integrity is defined as the retention of the resource's physical identity that existed during its period of significance. Integrity is determined through considering the setting, design, workmanship, materials, location, feeling and association of the resource.

As noted above, CEQA also requires lead agencies to consider whether projects will impact unique archaeological resources. PRC Section 21083.2, subdivision (g), states that " 'unique archaeological resource' means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

- Has a special and particular quality such as being the oldest of its type or the best available example of its type.

- Is directly associated with a scientifically recognized important prehistoric or historic event or person."

Treatment options under Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study-in-place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a unique archaeological resource).

Advice on procedures to identify cultural resources, evaluate their importance, and estimate potential effects is given in several agency publications such as the series produced by the Governor's Office of Planning and Research (OPR). The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including but not limited to, museums, historical commissions, associations and societies, be solicited as part of the process of cultural resource inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains.

Section 7050.5(b) of the California Health and Safety code specifies protocol when human remains are discovered. The code states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized

representative, in the manner provided in Section 5097.98 of the Public Resources Code.

State CEQA Guidelines Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as identified by the Native American Heritage Commission. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the State CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources, generally. Pursuant to Section 15064.5, subdivision (f), these provisions should include "an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be a historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place."

Paleontological resources are classified as non-renewable scientific resources and are protected by state statute (PRC Chapter 1.7, Section 5097.5, Archeological, Paleontological, and Historical Sites, and CEQA Guidelines Appendix G). No state or local agencies have specific jurisdiction over paleontological resources. No state or local agency requires a paleontological collecting permit to allow for the recovery of fossil remains discovered as a result of construction-related earth moving on state or private land in a project site.

LOCAL

Glenn County General Plan

The Glenn County General Plan (1994) governs areas beyond the limits of the City of Orland. The General Plan encourages identification and protection of cultural resources. The Glenn County General Plan, however, has no relevant cultural resources policies that are directly applicable to the proposed project (Glenn County, 1994). Therefore, no evaluation of the project with these statements can be completed.

City of Orland General Plan

The City of Orland General Plan (2003) generally addresses historic resources under Policy 1.1.B of the Land Use Element. This policy "encourages the preservation and restoration of significant historic structures." The 2003 General Plan touches briefly on Orland's Downtown District, and the Open Space and Conservation Element addresses a variety of open space issues including preservation of natural resources; managed production of resources; and outdoor recreation, including areas of scenic, historic, and cultural value.

4.5.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Following PRC Sections 21083.2 and 21084.1, and Section 15064.5 and Appendix G of the State CEQA Guidelines, cultural resource impacts are considered to be significant if implementation of the project would result in any of the following:

1) Cause a substantial adverse change in the significance of an archaeological resource or an historical resource as defined in Public Resources Code Section 21083.2 and CEQA Guidelines Section 15064.5, respectively;

2) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature; or

3) Disturb any human remains, including those interred outside of formal cemeteries.

State CEQA Guidelines Section 15064.5 defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource is materially impaired.

METHODOLOGY

PMC cultural resources staff performed all current archaeological and historical investigations for the proposed City of Orland General Plan. These investigations included a records search at the Northeast Information Center at California State University, Chico, as well as Native American consultation. As a result of these investigations 49 cultural resources were identified within the City's Planning Area. These resources include two historic bridges, ten residences/commercial buildings, two irrigation canals, and a spur of the Southern Pacific Railroad. The two bridges have been determined eligible for separate listing by a consensus determination. In addition, the Carnegie Community Center has been determined to be eligible for the National Register of Historic Places (NRHP). The Swift Adobe is a California Historical Landmark (# 345). The residences were evaluated in 2000 and are ineligible for the NRHP or California Register of Historical Resources (CRHR).

The records search indicated that less than 5 percent of the Planning Area has been previously surveyed. No formal pedestrian survey was conducted for the proposed City of Orland General Plan.

Additionally, PMC requested a sacred lands search and a list of Native American contacts from the Native American Heritage Commission and conducted a search of the University of California Museum of Paleontology collections database. The results of sacred lands search were received on November 8, 2007, and did not identify any Native American cultural resources either within or near the Planning Area. PMC contacted all groups and/or individuals on the list provided by the Native American Heritage Commission. PMC, to date, has not received any comments regarding the DEIR. The search of the UCMP paleontological database did not identify any paleontological resources in the Planning Area.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Potential Destruction or Damage to Known and Undiscovered Prehistoric Resources, Historic Resources, and Human Remains

Impact 4.5.1 Implementation of the proposed General Plan could result in the potential disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains. This would be a **potentially significant** impact.

Numerous buildings older than 50 years are located within the proposed City of Orland General Plan Planning Area, some dating back to the early 20th century. Some of the buildings have been evaluated for inclusion in the National Register of Historic Places, but many structures remain unevaluated. In addition, implementation of the proposed General Plan could lead to project-level ground-disturbing activities which could uncover additional previously unknown prehistoric resources, historic resources, or human remains within the Planning Area because of Orland's historical occupation by both Native Americans and Euroamericans. This is considered a **potentially significant** impact.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed General Plan for the City of Orland contains no policies and programs that would assist in reducing potential impacts to undiscovered prehistoric resources, historic resources, and/or human remains. Therefore, the following mitigation is required.

Mitigation Measures

MM 4.5.1a The following mitigation measure shall be added as a new goal within the proposed City of Orland General Plan Land Use Element:

Promote the preservation of the historic, archaeological, and paleontological resources of the City for their scientific, educational, and cultural values.

MM 4.5.1b The following mitigation measure shall be incorporated as a policy under the preceding proposed goal in mitigation measure **MM 4.5.1a:**

The City shall require appropriate surveys and site investigations when needed as part of the initial environmental assessment for development projects in accordance with the California Environmental Quality Act (CEQA) at the expense of the developer. Surveys and investigations shall be performed under the supervision of a professional archaeologist or other person qualified in the appropriate field and shall be approved by the City.

- If it is determined that a proposed project would impact a known historical or cultural resource, then each resource must be recorded and evaluated for eligibility for inclusion in the California Register of Historic Resources. All investigations shall be conducted by a professional archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in historic archaeology.

- Where prehistoric or historic resources are discovered that are determined to be eligible for the California Register of Historic Resources,

development shall be required to implement measures for the protection of the identified archaeological resources consistent with the provisions of Public Resources Code Section 21083.2 (i.e., excavation of the archaeological resource by qualified archaeologists leading to the curation of recovered materials and publication of resulting information and analysis, and avoidance or capping of the cultural resource site, etc.). The results of archival research and/or pre-construction investigations shall be provided to the City for review at the expense of the developer, along with recommendations regarding construction measures (e.g., excavation and recovery or avoidance) prior to the commencement of construction.

MM 4.5.1c The following mitigation measure shall be incorporated as a policy under the preceding proposed goal in mitigation measure **MM 4.5.1a**:

The City shall impose the following conditions on all discretionary projects in areas which do not have a significant potential for containing archaeological or paleontological resources: "If human remains are discovered, all work must stop in the immediate vicinity of the find, the City of Orland Planning Department shall be notified immediately, and the County Coroner must be notified according to Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the coroner will notify the Native American Heritage Commission, and the procedures outlined in CEQA Section 15064.5(d) and (e) shall be followed."

Implementation of the above mitigation measures would ensure appropriate actions are taken regarding cultural resources. Implementation of mitigation measures **MM 4.5.1a, MM 4.5.1b,** and **MM 4.5.1c** would reduce potential impacts to prehistoric and historic resources and inadvertently discovered human remains to a **less than significant** level.

Impacts to Paleontological Resources

Impact 4.5.2 Future construction activities associated with implementation of the proposed City of Orland General Plan could result in impacts to undiscovered paleontological resources. This is considered a **potentially significant** impact.

A search of the University of California, Berkeley Museum of Paleontology collections database did not identify any evidence of paleontological resources within the Planning Area. Paleontological resources, however, have been identified in Glenn County. Therefore, it is possible that project-related ground-disturbing activities associated with implementation of the proposed General Plan could uncover previously unknown paleontological resources. This is considered a **potentially significant** impact.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed City of Orland General Plan contains no policies or programs that would assist in reducing potential impacts to paleontological resources.

The following mitigation is required.

Mitigation Measures

MM 4.5.2 The following mitigation measure shall be incorporated as a policy under the proposed goal in mitigation measure **MM 4.5.1a**:

> The City shall impose the following conditions on all discretionary projects in areas which do not have a significant potential for containing archaeological or paleontological resources: "If any paleontological resources (fossils) are discovered during ground disturbing project activity, all work in the immediate vicinity must stop and the City of Orland Planning Division shall be immediately notified. A qualified paleontologist shall be retained by the developer to evaluate the finds and recommend appropriate mitigation measures for the inadvertently discovered paleontological resources.
>
> "The City of Orland and the project applicant shall consider the mitigation measures recommended by the qualified paleontologist for any unanticipated discoveries. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures. The project proponent shall be required to implement any mitigation measures deemed necessary by the City and the qualified paleontologist for the protection of the paleontological resources."

Implementation of **MM 4.5.2** would reduce impacts to paleontological resources to a **less than significant** level.

4.5.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting associated with the proposed City of Orland General Plan includes proposed, planned, reasonably foreseeable, and approved projects and development in Glenn County as described in Section 4.0 of this DEIR. Developments and planned land uses within the region would contribute to potential conflicts with cultural and paleontological resources. These resources include archaeological resources associated with Native American activities and historic resources associated with settlement, farming, and economic development.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Impacts to Prehistoric, Historic Resources, and Human Remains

Impact 4.5.3 Implementation of the proposed City of Orland General Plan, along with existing, approved, proposed, and foreseeable development in the vicinity of the City, could contribute to cumulative impacts to prehistoric resources, historic resources, and human remains. This contribution is considered **cumulatively considerable**.

Cumulative development in the region would result in the loss and/or degradation of cultural resources. The potential disturbance of human remains would also increase. These cumulative effects of development on cultural resources would be significant. Current archaeological and historical investigations for the Project did not identify any prehistoric or historic resources or human remains within Planning Area boundaries. Regardless, there is the potential for the

proposed Project to uncover previously undiscovered cultural resources because of the area's historic occupation by both Native Americans and Euroamericans. The proposed General Plan's potential to contribute to the loss of these resources is **cumulatively considerable**.

Mitigation Measures

Implementation of mitigation measures **MM 4.5.1a, 4.5.1b,** and **4.5.1c** would assist in reducing significant impacts to known and unknown prehistoric and historic resources and human remains. Therefore, cumulative impacts related to prehistoric and historic cultural resources and human remains would be reduced to **less than cumulatively considerable**.

Cumulative Impacts to Paleontological Resources

Impact 4.5.4 Implementation of the proposed City of Orland General Plan, along with existing, approved, proposed and foreseeable development in the region could result in the potential disturbance of paleontological resources (i.e., fossils and fossil formations). This is considered a **cumulatively considerable** impact.

Cumulative development in the region would result in the loss and/or degradation of paleontological resources. These cumulative effects of development on paleontological resources would be significant. As discussed under Impact 4.5.2, there are no known paleontological resources in the Planning Area. However, due to the previous discovery of paleontological resources in Glenn County, there is the potential for undiscovered paleontological resources. The proposed General Plan's potential to contribute to the loss of these resources is **cumulatively considerable**.

Mitigation Measures

Implementation of mitigation measure **MM 4.5.2** would assist in reducing significant cumulative impacts to known and unknown paleontological resources. Therefore, cumulative impacts related to paleontological resources would be reduced to **less than cumulatively considerable**.

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4.6 Geology, Seismicity, Soils and Hazardous Materials

This section evaluates potential impacts of implementing the proposed General Plan as they relate to geology and soils. Key issues addressed in this section include potential geologic and seismic hazards, soils disturbance and increased erosion, hazards associated with expansive soils, and exposure to hazardous materials, including transport, storage, use, and existing contamination. Section 4.3, Air Quality, contains information regarding air quality hazards. Section 4.7, Hydrology and Water Quality, discusses impacts associated with water quality and flooding. Hazards associated with transportation facilities, including potential hazards associated with Orland area airport operations, are described in Section 4.13, Transportation and Circulation. Section 4.11, Community Services, provides information on potential wildfire hazards.

4.6.1 EXISTING SETTING

TOPOGRAPHY AND LOCAL GEOLOGY

The City of Orland Planning Area contains approximately 6.42 square miles of land area in northern Glenn County. The topography of the proposed Planning Area is generally flat, with no significant elevated features.

The proposed Planning Area is located within the Great Valley geomorphic province, which is primarily described as a relatively flat alluvial plain, about 50 miles wide and 400 miles long, with thick sequences of sedimentary deposits of Jurassic through Holocene age. Boundaries of the Great Valley geomorphic province are the Klamath and Cascade mountain ranges on the north, the Sierra Nevada mountain range on the east, and the Coast Ranges on the west.

The geologic history of the Orland area includes a mixture of ancient marine and alluvial deposits. Up to 155 million years ago, periods of volcanic activity and uplifting were followed by periods of uplifting and folding, which formed the Coast Ranges. The Sacramento Valley floor, on which the City of Orland is located, is a structural trough formed by the uplift of the mountains surrounding it. This trough has been filled in by sequences of marine and alluvial sediments ranging in age from 135 million years ago to the present.

The Planning Area lies atop the Stony Creek Fan, an alluvial fan formed as Stony Creek deposited sediments onto the plain of the Sacramento Valley. The fan occupies an area approximately 30 miles long and 25 miles wide at its greatest extent, from Black Butte Dam to the Sacramento River. The fan consists of a total thickness of 1,400 to 1,600 feet of sediments deposited by fresh water. **Figure 4.6-1**, at the end of the section, is a geologic map of the Stony Creek Fan. Geologic materials consist primarily of unconsolidated Pleistocene deposits from Stony Creek and are divided into three types according to soil profile development: Older Alluvial Fan Deposits, Young Alluvial Fan Deposits, and Recent Alluvial Fan Deposits.

Older Alluvial Fan Deposits

The Older Alluvial Fan Deposits (shown as Qoal in **Figure 4.6-1**) occur on elevated terraces north of Artois and south of the Tehama county line. These sediments underlie the Capay area north of Stony Creek and consist of unconsolidated to moderately consolidated clay, silt, sand, and gravel. They represent dissected remnants of an ancestral Stony Creek fan. The Arbuckle-Kimball-Hillgate soil association is linked to this alluvium.

Young Alluvial Fan Deposits

The Young Alluvial Fan Deposits south of Stony Creek (Qyf) consist of unconsolidated silt, sand, and gravel. The Tehama and Plaza soils, which have slightly developed profiles, are associated with these deposits.

The Young Alluvial Deposits are found in the Stony Creek and Sacramento River channels (Qrsc), on floodplains (Qfl and Qofl), in flood basins (Qob), and associated with intermittent streams on low foothills southwest of Orland (Qal). In the stream channels, deposits consist of sand and gravel with high to very high hydraulic conductivity. The floodplain deposits follow the west side of the Sacramento River and consist of unconsolidated clay, silt, and sand. They are associated with the Columbia soils. The related soils are the Willows-Plaza-Castro association.

Recent Alluvial Fan Deposits

The Recent Alluvial Fan Deposits (Qrf) occur between Bayliss and Capay and consist of silt, sand, and gravel. The Cortina, Wyo, and Jacinto soils are also associated with these deposits. They have a high gravel content and a very high hydraulic conductivity. Gravel mining is typically associated with these deposits.

SOIL

There are six major factors that influence and control the characteristics of the soil for any given area: climate, relief/topography, organic content, parent material, time, and human activity.

Most soils have several layers. In areas where there has not been significant disturbance, there are usually three main layers. These layers are commonly referred to as the surface, topsoil, and subsoil. The characteristics of each layer vary with depth and type.

According to the Soil Conservation Advisory Committee, there are an estimated 1,300 different soil types in the state of California. The fertile soils of the Sacramento Valley and climate provide a unique growing area. These fertile soils are presently under the constant threat of urban development.

Soils are determined by physiographic position, soil texture, soil profile, and slope. Orland is located on a more recent alluvial fan of Stony Creek. There are three major soils types: Riverwash, Orland Loam, and Cortina Loam.

Riverwash consists of stratified deposits of sand and gravel with 0 to 8 percent slopes. Riverwash occurs along drainage ways, on sand and gravel bars of major active streams, and in the channels of intermittent creeks.

The Planning Area contains two related Orland loam soils: Orland loam and Cortina loam. Most of the soils on more recent alluvial fans and floodplains generally consist of shallow to deep, well-drained to excessively-drained gravelly and non-gravelly stratified material. The soils in this association are shallow to deep over alluvium washed chiefly from areas on schistose and sedimentary rocks. Cortina soils, on floodplains and in channels, are gravelly and are excessively drained. They are shallow to moderately deep over channel sand and gravel.

Soils within the Planning Area are essentially gravelly. There is not a significant difference in the soils between different parts of the Planning Area which would be an overriding consideration for recommendation of development in one area or another.

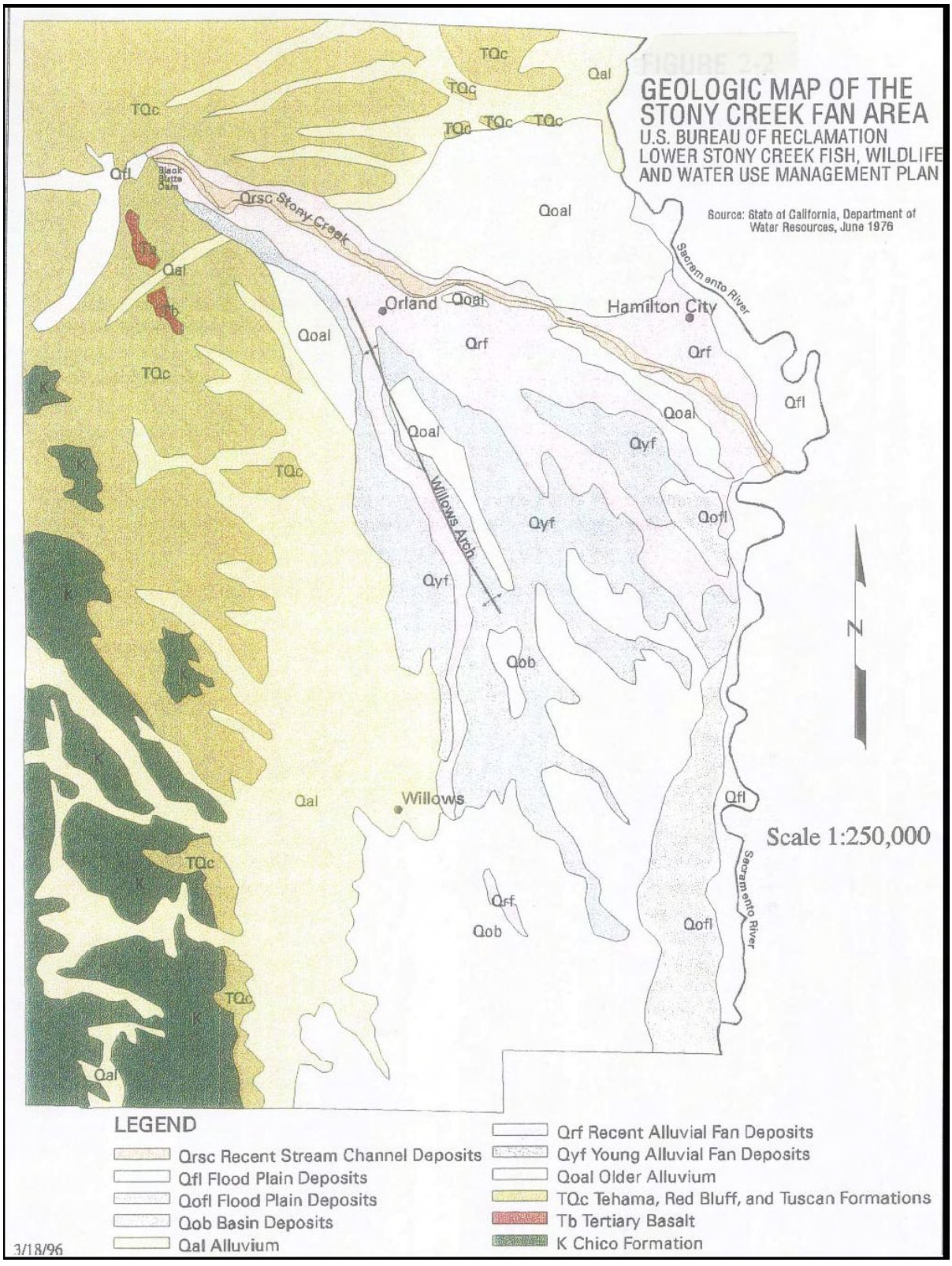


FIGURE 4.6-1
GEOLOGIC MAP OF STONY CREEK FAN AREA

PMC

Soil Erosion

There are two general types of erosion: geologic and accelerated. Geologic erosion is basically a natural type of erosion that occurs at a very slow rate. This type of erosion is not usually associated with areas where human activity takes place. The process of accelerated erosion is influenced and perpetuated by human disturbance and is therefore an issue of concern. Causes for accelerated erosion include activities such as bulldozing for urban development. There are four major properties of the soil that can be used to determine its erodibility. These properties are texture, slope, structure, and organic matter content.

Texture is generally considered the most important property in the process of soil erosion. Texture identifies the relative proportion of particles within the soil. *Slope* is the relative steepness of the ground surface. As the steepness of the slope increases, so does the potential for erosion. The *structure* of the soil is the way in which its particles are structured. These clusters are the result of both physical and chemical bonds. *Organic matter* is the decomposed remains of plants and animals. This property influences soil fertility, water infiltration, and storage.

Soil erosion poses many problems and hazards for an urban community. These problems include an increase in sediment load of surrounding waterways, degradation of surrounding vegetation, loss of fertile topsoil, and the accumulation of silt on sidewalks and roadways.

GEOLOGIC HAZARDS

Seismicity

The California Mining and Geology Board has defined active faults as those for which there is evidence of surface displacement within the Holocene epoch, that is, within about the last 11,000 years. Some faults are characterized as active based on surface displacements within historic time, about the last 200 years, while others are characterized as active based on surface displacements in rocks or sediments that are less than 11,000 years old.

This definition of active fault does not mean, however, that all faults for which there is no evidence of surface displacement during the Holocene are inactive. Some faults may have been active in this time period, but did not result in identifiable surface displacements, while other faults may still be active although they have not been active during the Holocene. Many recent, damaging California earthquakes, including the 1975 Oroville earthquake, the 1983 Coalinga earthquake, and the 1987 Whittier Narrows earthquake, occurred on faults not previously recognized as active.

The Mining and Geology Board has defined potentially active faults as those for which there is evidence of surface displacement within the Quaternary period, that is, within about the last 1.6 million years. Faults classified as potentially active faults show no evidence of surface displacements within the past 11,000 years, but this period of time is short geologically and thus such faults are considered potentially active. Faults that do not meet these criteria for being classified as active or potentially active are not necessarily permanently inactive.

Seismic risk is not limited to faults that have been currently identified. A significant fraction of small to moderately large earthquakes typically occurs on faults not previously recognized. Such earthquakes are characterized as "background seismicity" or "floating earthquakes" which indicate that the expected sources and locations of such earthquakes are unknown.

The severity of an earthquake can be expressed in terms of both magnitude and intensity. Magnitude is a measure of the strength of an earthquake, commonly presented in terms of the Richter scale. Earthquake magnitude is a measure of the total amount of energy released in an earthquake. With increasing magnitude, ground motions are stronger, last longer and are felt over larger areas. The intensity of an earthquake describes the impacts on people and structures, presented in terms of the Modified Mercalli scale. Earthquake intensity is often more useful than magnitude when discussing the damaging effects of earthquakes. The most common intensity scale is the Modified Mercalli Intensity (MMI) scale, which ranges from I to XII. **Table 4.6-1** compares magnitudes and intensities.

Seismic activity has been experienced in many parts of California, so there is always a potential hazard from earthquakes, which occur in this general region of the United States. Potentially the most significant seismic source is the Cascadia Subduction Zone, located offshore of northern California, Oregon, and Washington at a low angle and considered capable of generating earthquakes of magnitude 8.0 to 9.0. Due to fault geometry and the great area of potential rupture surface, long duration and intense shaking from such an earthquake could result in potential damage to the Orland area.

TABLE 4.6-1
COMPARISON OF EARTHQUAKE MAGNITUDE AND INTENSITY

Magnitude	Intensity	Description
1.0 – 3.0	I	Not felt except by a very few under especially favorable conditions.
3.0 – 3.9	II – III	Felt only by a few persons at rest, especially on upper floors of buildings. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
4.0 – 4.9	IV – V	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
5.0 – 5.9	VI – VII	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
6.0 – 6.9	VIII – IX	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
7.0 and higher	VIII or higher	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Source: USGS, 2009

Ground Shaking

In populated areas, the greatest potential for loss of life and property damage is a result of ground shaking from a nearby earthquake. The degree of damage depends on many interrelated factors. Among these factors are the Richter magnitude, focal depth, distance from the causative fault, source mechanism, duration of shaking, high rock accelerations, type of surface deposits or bedrock, degree of consolidation of surface deposits, presence of high ground water, topography, and design, type, and quality of building construction.

The Alquist-Priolo Special Studies Zone Act (APSSZ) represents the current state-mandated approach to preventing development in active fault zones. The Special Studies Zones are delineated and defined by the state geologists within the assigned zones. Cities and counties must establish special procedures for reviewing applications for new building permits. There are no designated APSSZ within the Planning Area, nor are there any known or inferred active faults. Thus, the potential for ground rupture within Orland is considered very low. During the past 100 years, Glenn County has experienced only minor earthquakes within its boundaries and secondary impacts from earthquakes centered out of the area.

The closest fault to Orland is located approximately 10 miles to the west near Black Butte Reservoir. This fault trends northwest-southeast and can be considered potentially active. Several other faults are located further west in the Coast Ranges, as well as to the east in the Sierra Nevada. The San Andreas fault, Hayward fault, Cleveland Hills fault, and other active faults are within 100 miles of the City. These faults are capable of generating earthquakes that could be felt in the proposed Planning Area. However, these earthquakes are not expected to cause any major catastrophes in the proposed Planning Area.

Following is a description of the active faults in or near Glenn County and the potential effect they could have on the City of Orland.

Cleveland Hills Fault

The Cleveland Hills fault in Butte County is responsible for the 1975 Oroville earthquake of Richter magnitude 5.7, an event that produced surface displacement along about 2.2 miles of the fault. Geologic studies indicate that the total length of the Cleveland Hills fault is probably 11 to 15 miles. The maximum credible earthquake on this fault is approximately magnitude 6.5 to 6.7. An event of this magnitude would cause substantially more damage than the 1975 event. The Cleveland Hills fault is located approximately 40 miles southeast of the Orland city limits.

Chico Monocline Fault

The Chico Monocline fault, which extends northwesterly from the City of Chico, was considered potentially active in an unpublished 1988 report by the California Geological Survey. Based on its length, this fault could produce at least a magnitude 7.0 earthquake, which could potentially be felt in Orland.

Willows Fault

West of Orland is the 40-mile-long Willows fault which could produce a magnitude 7.0 earthquake and could yield an MMI as high as VIII in the City (comparable to the intensity experienced during the 1975 Oroville earthquake). The Willows fault is approximately 10 miles west of Orland at its closest.

Coast Ranges Thrust Zone

The Coast Ranges Thrust Zone is approximately 24 miles west of the City. This fault zone could potentially produce a magnitude 8.0 earthquake which could be experienced in Orland. An event of this magnitude could potentially cause damage within the City.

San Andreas Fault System

The San Andreas fault, along with related faults such as the Hayward and Calaveras faults, is one of the most active faults in California. Total displacement along this fault has been at least 450 miles and could possibly be as much as 750 miles. This fault system was responsible for the magnitude 8.0 San Francisco earthquake of 1906 as well as numerous other damaging earthquakes, including the 1989 Loma Prieta earthquake. At its nearest point, the San Andreas fault is about 96 miles west of the City.

Hayward-Calaveras Fault

The Hayward-Calaveras fault complex is considered to be a branch of the San Andreas fault. An 1868 earthquake is reported to have caused strong fluctuations in the water level in the Sacramento River near Sacramento and in a slough near Stockton.

Midland-Sweitzer Fault

The 80-mile-long Midland-Sweitzer fault lies approximately 50 miles south of Orland. Historically, earthquakes of Richter magnitudes between 6.0 and 6.9 have occurred on or near this fault, including two strong earthquakes in 1892. Based on the fault length and the historic activity, this fault is capable of producing a magnitude 7.0 earthquake, which would be experienced in the Orland vicinity.

Although the Planning Area is not prone to seismic hazards, potential geologic hazards can be substantially eliminated through action of the City such as enforcement of the Uniform Building Code.

OTHER GEOLOGIC CONSTRAINTS AND HAZARDS

Other geologic hazards in the Planning Area include the potential for landslides, liquefaction, subsidence erosion, and soil expansion. The extent of the potential hazards is summarized below.

Landslides

Areas of highest apparent landslide potential generally correlate with relief, precipitation, and grading. The Orland Planning Area is relatively flat and has a low potential for landslides.

Liquefaction

Liquefaction is the loss of soil strength due to seismic forces generating various types of ground failure. The potential for liquefaction must account for soil types and density, the groundwater table, and the duration and intensity of ground shaking. Based upon known soil, groundwater, and ground shaking conditions, the potential for liquefaction within the proposed Planning Area is considered low. The potential for ground lurching, differential settlement, or lateral spreading occurring during or after seismic events in the proposed Planning Area is also considered low. However, area conditions (shallow groundwater and sandy alluvial soils) do favor settlement if a

strong seismic event occurred in the area. Detailed soils engineering evaluations are appropriate to further evaluate the liquefaction potential for individual projects.

Subsidence

Subsidence occurs at great depths below the surface when subsurface pressure is reduced by the withdrawal of fluids (i.e., groundwater, natural gas). A vacuum may be created that gradually causes sinking of the ground. The primary cause of subsidence in the Planning Area would be from overdrafting of groundwater. Currently, no area of serious overdraft has been identified in the Planning Area. Additionally, there have been no reports of subsidence. The groundwater in the Planning Area continues to recharge to prior levels, indicating overdraft is not a problem.

Erosion

Erosion may be expected within the City of Orland where protective vegetation is removed by construction, fire, or cultivation. Factors that contribute to erosion include topography, rainfall, and soil type. As the Orland Planning Area is relatively flat, there is a low potential for erosion.

Expansive Soils

A soil's potential to shrink and swell depends on the amount and types of clay in the soil. Certain clays expand when wet and disproportionately shrink when dry. Highly expansive soils can cause structural damage to foundations and roads and are less suitable for development than non-expansive soils. According to the Glenn County General Plan, the Orland Planning Area has a low to high potential for expansive soils. A map of expansive soils in the Glenn County General Plan shows the majority of expansive soils west of Interstate 5. Detailed geologic investigations may be necessary for areas with moderate to high shrink-swell potential. Development on expansive soils requires special grading and construction techniques.

Other Potential Hazards

There is no potential in the proposed Planning Area for landslides to occur, since the topography is flat. There are no oceans or large bodies of water in the Planning Area, so there is little or no possibility for seiches or tsunamis to occur. The nearest volcano to Orland that could be potentially active is Lassen Peak, approximately 80 miles to the northeast. Depending on its strength and direction, and on weather conditions, a Lassen Peak eruption conceivably could deposit ash on the proposed Planning Area. However, significant damage from an eruption is unlikely.

MINERAL RESOURCES

Aggregate Mining

Lower Stony Creek traverses its alluvial fan from Black Butte Dam to the Sacramento River, following one of three major fingers of gravelly soil that represent former channel courses. These former channels are represented by the coarse-textured, well-drained soils depicted on the geologic map of the Stony Creek Fan (see **Figure 4.6-1**). In-stream gravel mining has been particularly intensive in lower Stony Creek. Generally Stony Creek aggregates consist of stream channel deposits, including flood and overbank deposits in the upper reaches, and are classified as MRZ-2a (marginal reserves). According to the Department of Mines and Geology,

using past consumption rates (1965-1995) adjusted for anticipated changes in market conditions and mining technology, a depletion of reserves is expected by the year 2038 (BOR, 1998).

Currently, three gravel extraction facilities are in operation along Stony Creek near the Planning Area. Valley Rock Products is located at 7266 State Highway 32, approximately 2.5 miles east of the Planning Area, Orland Sand and Gravel, located at 6535 County Road 9, is on the north side of Stony Creek adjacent to the Planning Area, and Baldwin Contracting is at 6415 County Road 7, also on the north side of Stony Creek adjacent to the Planning Area. All operations are subject to the Surface Mining and Reclamation Act (SMARA) and have reclamation plans. The Department of Fish and Game has monitored these operations with restrictions on in-channel operations since 1976. Gravel mining operations generally employ bar skimming in which gravel bars above water level are harvested; the channel is not excavated below the existing thalweg. The thalweg is a line in the stream channel representing the low point of the water channel. Currently, there is no mining activity occurring within the proposed Planning Area.

The California Geological Survey, formerly the Division of Mines and Geology, has a project that assists in the protection and development of mineral resources through the land-use planning process. The Surface Mining and Reclamation Act of 1975 requires this project. The primary products of this project are mineral land classification maps and reports, which designate mineral resource zones. Lands are classified by the presence of mineral resources and their potential value. Local agencies are required to use the classification information when developing land use plans and when making land use decisions. The proposed Planning Area does not have any mineral resource zones designated within its boundaries. Neither the City's existing General Plan nor the Glenn County General Plan identifies any mineral resources in the proposed Planning Area.

In-channel mining may affect the vegetation, channel geomorphology, and surface hydrology of stream systems if not properly mitigated. Mining affects in-stream hydraulics and impairs sediment transport, gravel recruitment, and stream channel meander processes. In-stream gravel removal may also affect water quality. The level of effect will vary by the extent of area mined annually within the active channel zone, the type of mining, i.e., bar skimming, deeper channel pit mining, or mining of outer bank terrace deposits, and the type of reclamation or special conditions that are required as part of future use permits. Gravel bar skimming is the typical gravel removal technique used in lower Stony Creek (BOR, 1998).

Recently, Glenn County is attempting to regulate resource damage through its permitting process where "disturbance of banks, riparian vegetation, and flowing portions of the creek is usually prohibited" (Glenn County, 1997). Since 1997, the Department of Fish and Game has allowed no pit mining in-stream and encourages off-stream mining, which is isolated from flowing water, maintains stream bank protection conditions, and limits elevations of gravel removal to maintain slopes.

As Glenn County promotes a gradual shift to permitted gravel extraction in off-channel terrace mines, in-channel mining operations may taper to a lower level as sites with existing permits are further depleted. Future Streambed Alteration Agreements under Section 1603 of the California Fish and Game Code, renewed annually, may require additional conditions that also encourage an industry shift to off-channel mine sites.

HAZARDOUS MATERIALS

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an

agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as:

> 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 reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed (California Code of Regulations, Title 22, Section 66260.10).

Chemical and physical properties that cause a substance to be considered hazardous, including the properties of toxicity, ignitability, corrosivity, and reactivity, are defined in the CCR, Title 22, Sections 66261.20–66261.24. Factors that influence the health effects of exposure to hazardous material include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility.

Hazardous Materials Sites

The State of California Hazardous Waste and Substances Site List (also known as the "Cortese List") is a planning document used by state and local agencies to comply with California Environmental Quality Act (CEQA) requirements to provide information about the location of hazardous materials sites. Government Code Section 65962.5 requires the California Environmental Protection Agency (Cal-EPA) to annually update the Cortese List. The California Department of Toxic Substances Control (DTSC) is responsible for preparing a portion of the information that comprises the Cortese List. The DTSC maintains the Envirostor database of hazardous material sites, accessible through the agency's website (www.dtsc.ca.gov/SiteCleanup). Other state and local government agencies are required to provide additional hazardous material release information that is part of the complete list.

A search of the Envirostor database for the City of Orland showed one potential hazardous material site in the Planning Area: Orland Cleaners located at 726 Fifth Street. Orland Cleaners has been identified as the apparent source of a groundwater plume that extends approximately 2.5 miles from the source in a southeast direction, which is the direction of groundwater flow, to a depth ranging from approximately 12 to 127 feet below ground surface. The plume is approximately 4,000 feet wide. The specific contaminants released from this site include halogenated solvents and tetrachloroethylene, also known under its systematic name perchloroethylene (PCE). Glenn County is working with the Department of Toxic Substances Control (DTSC) to impose regulatory controls on all wells proposed to be drilled within the 'plume area of concern' defined as within 500 feet of the PCE plume and within 1000 feet of the down gradient plume edge. These wells will require a minimum seal depth of 150 feet that is seated in at least ten feet (10') of clay. The DTSC will continue to sample all existing drinking water supply wells in the plume vicinity for the presence of volatile organic compounds (VOCs) when requested by the well owners.

The contaminant profile of the Orland Auxiliary Field was not specified.

Leaking Underground Fuel Tanks and Unknown Underground Storage Tanks

Geographic Environmental Information Management System (GEIMS) is a data warehouse that tracks regulatory data regarding underground fuel tanks, fuel pipelines, and public drinking water supplies. It is also used to identify properties that are known or have had contaminant

spills. GeoTracker, the interface to GEIMS, uses commercially available software to allow users to access data from GEIMS over the Internet, including information regarding leaking underground fuel tanks (LUFT), other contaminant release sites, water quality information, water use information, and infrastructure data needed to assess both water supplies and contaminant sites. Geotracker and GEIMS also allow users to obtain well, tank, and pipeline data for specific properties and to determine the distance between contaminant sites and sensitive drinking water sources.

According to the GEIMS database, there were 16 leaking underground fuel tanks and underground storage tank sites within the City. Of these, all but the Glenn County Service Center, located at 821 E. South Street, have been remediated. The potential for additional unknown underground storage tanks (USTs) is likely within Glenn County given past land use history. An Environmental Site Assessment, as required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for most commercial, industrial, and residential projects, would determine site-specific information, including past hazardous materials involvement.

Transportation of Hazardous Materials

The transportation of hazardous materials within the proposed Planning Area is subject to various federal, state, and local regulations. The following provisions in the California Vehicle Code pertain to the transportation of hazardous materials.

- The California Highway Patrol designates the routes in California which are to be used for the transportation of explosives (Section 31616).

- The California Vehicle Code applies when the explosives are transported as a delivery service for hire, or in quantities in excess of 1,000 pounds. The transportation of explosives in quantities of 1,000 pounds or less, or other than on a public highway, is subject to the California Health and Safety Code (Section 31601(a)).

- It is illegal to transport explosives or inhalation hazards on any public highway not designated for that purpose, unless the use of the highway is required to permit delivery of, or the loading of, such materials (Section 31602(b) and Section 32104(a)).

- When transporting explosives through or into a city for which a route has not been designated by the Highway Patrol, drivers must follow routes as may be prescribed or established by local authorities (Section 31614(a)).

- Inhalation hazards and poison gases are subject to additional safeguards. These materials are highly toxic, spread rapidly, and require rapid and widespread evacuation if there is loss of containment or a fire. The Highway Patrol designates through routes to be used for the transportation of inhalation hazards. It may also designate separate through routes for the transportation of inhalation hazards composed of any chemical rocket propellant (Section 32100 and Section 32102(b)).

Interstate 5 and State Route 32 are roadways that vehicles transporting hazardous materials use, raising concerns about accidents. Explosives require a permit for transportation by either a federal or state authority. Federal and state registries keep track of transport of other hazardous materials. On local roads, vehicles may transport smaller quantities of materials classified as hazardous, such as fertilizers, nitrates, and chlorine. While the materials are transported in

quantities too small to cause widespread environmental damage, they are nonetheless subject to strict regulations on their transport.

SPECIFIC POTENTIAL HAZARDOUS MATERIALS

Asbestos

Asbestos is a general name for a group of naturally occurring minerals composed of small fibers. Most of these minerals are ultramafic, which contain 90 percent or more of the dark-colored iron-magnesium-silicate minerals olivine, augite, hypersthene, and (less commonly) hornblende. Another asbestos mineral is serpentine, found in the foothill regions of California. Based on information in a California Geological Survey report, it is unlikely that any naturally occurring asbestos minerals are located within the proposed Planning Area.

Asbestos has been commonly used in many building materials, which may include but are not limited to floor coverings, drywall joint compounds, acoustic-ceiling tiles, piping insulation, electrical insulation, and fireproofing materials. Structures constructed or remodeled between 1930 and 1981 have the potential to contain building materials with asbestos. Various diseases have been associated with exposure to asbestos fibers, and the extensive use of asbestos in building materials has raised some concern about exposure in non-industrial settings. Health hazards associated with asbestos include increased risks of cancer and respiratory illnesses and diseases.

The presence of asbestos in a building does not mean that the health of building occupants is endangered. As long as asbestos-containing materials remain in good condition and are not disturbed or damaged, exposure is unlikely. However, damaged, deteriorated or disturbed asbestos-containing materials can lead to fiber release and exposure. Unauthorized removal or disturbance of asbestos materials also could result in adverse health effects. There are numerous buildings and structures within the proposed Planning Area that were constructed between 1930 and 1981. The potential safety hazards resulting from asbestos are greatest during demolition activities, but rehabilitation of older buildings also poses a potential hazard.

Lead-Based Materials

Lead is a highly toxic metal used for many years in products found in and around homes. Lead may cause a range of adverse health effects, from behavioral problems and learning disabilities to seizures and death. Children six years old and under are most at risk. Research suggests that the primary sources of lead exposure for most children are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated residential soil. Exposure to lead from older vintage paint is possible when the paint is in poor condition or during paint removal. In construction settings, workers can be exposed to airborne lead during renovation, maintenance, or removal work.

Lead-based paints were phased out of production in the early 1970s. Some of the buildings and structures within the proposed Planning Area were constructed prior to the ban on lead-based paints. Therefore, it is possible that lead-based paints and materials are present in some structures. Proper handling and disposal of lead-based materials significantly reduces potential risks to human health and to the environment.

Electrical Facilities and Electromagnetic Fields

Pacific Gas and Electric Company owns and operates the existing electrical facilities within the City of Orland Planning Area and is the exclusive electrical service provider to the City providing service to the entire Planning Area. There are several 12-kilovolt (kV) and 69 kV transmission lines throughout the Planning Area.

Electromagnetic fields (EMF) are invisible lines of force surrounding any electrical wire or device. They consist of two components — the electric field, which is the result of voltage, and the magnetic field, which is the result of current flow. Ordinary everyday use of electricity produces magnetic and electric fields. These 60 Hertz fields (fields that go back and forth 60 times a second) are associated with electrical appliances, power lines, and wiring in buildings. EMF health and safety issues from power lines are preempted by the Public Utilities Commission and therefore typically not addressed in general plans. Although a point of concern, the evidence that electromagnetic fields from high voltage power lines can be hazardous to human health is not quantifiable and remains unresolved. Federal agencies working on establishing limits and health standards related to EMF include the National Institute for Occupational Safety and Health, Environmental Protection Agency, Federal Communications Commission, Occupational Safety and Health Administration, National Telecommunications and Information Administration, and the National Institutes of Health.

PCB Transformers

Polychlorinated biphenyls (PCBs) are a group of organic chemicals which can be odorless or mildly aromatic solids or oily liquids. They were formerly used as hydraulic fluids, lubricants, and fire retardants among other uses, as well as in heat transfer systems. In 1978, the U.S. Environmental Protection Agency (USEPA) banned the manufacture of PCBs and regulated their use and disposal. PCBs have been identified as potential cancer-causing agents and have been associated with other adverse health effects.

Despite the ban, certain sources of PCBs still exist. These include fluorescent light ballasts and electric transformers. Both of these potential PCB-containing sources potentially exist within the proposed Planning Area, particularly within older structures or with older power poles. The Pacific Gas and Electric Company (PG&E) provides electric service to the entire proposed Planning Area and is responsible for the operation, maintenance, and repair of transformers and electrical facilities. Under a PCB reduction program, PG&E has removed from service more than 99 percent of the PCBs that existed in its electric distribution system, including PCBs in large capacitors and network transformers (USEPA and Environment Canada, 2004).

Residual Agricultural Chemicals

The proposed Planning Area is associated with a variety of agricultural uses. Currently, the main agricultural uses include row crops, field crops, and orchards. Most of the proposed Planning Area's agricultural land is outside the existing city limits. Within the Orland Planning Area, agricultural lands are located along the edges of the City, to the east, south, west, and north.

Residual chemicals associated with current and past agricultural activities may be present at differing levels in the proposed Planning Area. Irrigated pasture, dry-farmed crops, and natural grasses typically require little to no applications of environmentally persistent pesticides. Although irrigated row crops may have been subject to applications of restricted agricultural chemicals, restricted compounds are not necessarily persistent compounds. An example of a restricted but not persistent group of agricultural chemicals would be the triazine herbicides,

which are often applied to corn crops. Over-the-counter insecticides and herbicides may have been used in the proposed Planning Area; however, these chemicals generally do not persist in soils for greater than one year from application. Orchards and orchard-cultivated soils may have been contaminated through repeated application of chemicals to fruit or nut trees. Specifically, lead-arsenates and organochlorine pesticides, a "family" of compounds that includes the banned DDT, may have been applied to the orchards.

4.6.2 REGULATORY FRAMEWORK

GEOLOGIC RESOURCES

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (prior to January 1, 1994, called the Alquist-Priolo Special Studies Zones Act – CCR, Title 14, Section 3600) sets forth the policies and criteria of the State Mining and Geology Board that governs the exercise of governments' responsibilities to prohibit the location of developments and structures for human occupancy across the trace of active faults. The policies and criteria are limited to potential hazards resulting from surface faulting or fault creep within Earthquake Fault Zones delineated on maps officially issued by the State Geologist. Working definitions include:

- **Fault:** A fracture or zone of closely associated fractures along which rocks on one side have been displaced with respect to those on the other side.

- **Fault Zone:** A zone of related faults, which commonly are braided, and subparallel, but may be branching and divergent. A fault zone has a significant width (with respect to the scale at which the fault is being considered, portrayed, or investigated), ranging from a few feet to several miles.

- **Sufficiently Active Fault:** A fault that has evidence of Holocene surface displacement along one or more of its segments or branches (last 11,000 years).

- **Well-Defined Fault:** A fault whose trace is clearly detectable by a trained geologist as a physical feature at or just below the ground surface. The geologist should be able to locate the fault in the field with sufficient precision and confidence to indicate that the required site-specific investigations would meet with some success.

"Sufficiently Active" and "Well Defined" are the two criteria used by the State to determine if a fault should be zoned under the Alquist-Priolo Act.

California Building Code

The City of Orland has adopted the 2001 California Code of Regulations, Title 24, also known as the California Building Standards Code or California Building Code. The California Building Code, based on the federal Uniform Building Codes, applies to building design and construction in the state of California, and provides minimum standards for building design. The California Building Code modified Uniform Building Code regulations for specific conditions found in California and included a large number of more detailed and/or more restrictive regulations. For example, the California Building Code includes common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil-related impacts. It also requires structures to be built to withstand ground shaking in areas of high earthquake hazards,

and the placement of strong motion instruments in larger buildings to monitor and record the response of the structure and the site of seismic activity.

Subdivision Map Act

The Subdivision Map Act (California Government Code Section 66410 et seq.) governs the subdivision of land in California. Government Code Section 66490 requires a preliminary soils report for every subdivision for which a final map is required. The soils report must be prepared by a civil engineer registered in California and must be based on adequate test borings. The local jurisdiction may enact an ordinance requiring a preliminary soils report for other subdivisions. Government Code Section 66491 allows a local jurisdiction to enact an ordinance providing for a waiver of a preliminary soils report if, based on its knowledge of the soils in the proposed subdivision, it determines no preliminary analysis is necessary. It also permits an ordinance that allows a jurisdiction to request additional information if soils problems are encountered or if the preliminary soils report is determined to be incomplete, inaccurate, or unsatisfactory.

City of Orland General Plan

The City's Safety Element from the current General Plan includes a number of geologic-related policies and programs focusing on protecting lives and property through compliance with building code standards. Program 3.4.A.1 requires development projects in areas that have the potential for expansive soils to undertake necessary studies and structural precautions as part of the project approval process. Program 3.4.A.3 requires the City to work with owners of existing buildings to encourage structural improvements to meet current seismic standards.

HAZARDOUS MATERIALS

Table 4.6-2 lists federal and state regulatory agencies that oversee hazardous materials handling and hazardous waste management, and the statutes and regulations that they administer.

TABLE 4.6-2
HAZARDOUS MATERIALS REGULATORY AUTHORITY

Regulatory Agency	Authority
Federal Agencies	
Department of Transportation (DOT)	Hazardous Materials Transport Act - Code of Federal Regulations (CFR) 49
Environmental Protection Agency (USEPA)	Federal Water Pollution Control Act Clean Air Act Resource Conservation and Recovery Act (RCRA) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Superfund Amendments and Reauthorization Act (SARA) Federal Insecticide, Fungicide and Rodenticide Act
Occupational Safety and Health Administration (OSHA)	Occupational Safety and Health Act and CFR 29
State Agencies	
Department of Toxic Substances Control (DTSC)	California Code of Regulations

Regulatory Agency	Authority
Department of Industrial Relations (CAL-OSHA)	California Occupational Safety and Health Act, CCR Title 8
State Water Resources Control Board and Regional Water Quality Control Board	Porter-Cologne Water Quality Act Underground Storage Tank Law
Health and Welfare Agency	Safe Drinking Water and Toxic Enforcement Act
Air Resources Board and Air Pollution Control District	Air Resources Act
Office of Emergency Services	Hazardous Materials Release Response Plans/Inventory Law
Department of Food and Agriculture	Food and Agriculture Code
State Fire Marshal	Uniform Fire Code, CR Title 19

Environmental Protection Agency

USEPA provides leadership in the nation's environmental science, research, education and assessment efforts. USEPA works closely with other federal agencies, state and local governments, and Native American tribes to develop and enforce regulations under existing environmental laws. USEPA is responsible for researching and setting national standards for a variety of environmental programs and delegates to states and tribes responsibility for issuing permits, and monitoring and enforcing compliance.

Other Federal Agencies

Other federal agencies that regulate hazardous materials include the Occupational Safety and Health Administration (OSHA), the Department of Transportation (DOT), and the National Institute of Health (NIH). The following federal laws and guidelines govern hazardous materials.

- Federal Water Pollution Control Act
- Clean Air Act
- Occupational Safety and Health Act
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- Guidelines for Carcinogens and Biohazards
- Superfund Amendments and Reauthorization Act Title III (SARA)
- Resource Conservation and Recovery Act (RCRA)
- Safe Drinking Water Act
- Toxic Substances Control Act

Prior to August 1992, the principal agency at the federal level regulating the generation, transport and disposal of hazardous waste was USEPA, under the authority of RCRA. As of August 1, 1992, the California Department of Toxic Substance Control (DTSC) was authorized to implement the state's hazardous waste management program for USEPA, which continues to regulate hazardous substances under CERCLA.

Federal and State Standards and Controls

Hazardous materials transport, storage, and disposal are subject to a variety of federal, state, and local regulations. The Federal Hazardous Materials Transportation Act (99 USC Section 1801

et seq.) aims to ensure the safe transport of hazardous materials via water, rail, highway, air, or pipeline. The Resource Conservation and Recovery Act (42 USC Section 6901 et seq.) Subtitle C addresses hazardous waste generation, storage, treatment, and disposal. Subtitle I requires monitoring and containment systems for underground storage tanks that hold hazardous materials.

The State Health and Safety Code (Chapter 6.5) regulates the transport, treatment, and disposal of hazardous wastes. Chapters 6.67 and 6.75 respectively deal with aboveground and underground petroleum storage tanks, while Chapter 6.7 regulates underground storage of other hazardous substances. The Department of Toxic Substances Control issues policies and regulations concerning hazardous materials. The Glenn County Department of Environmental Health is the local enforcement agency for issuing permits and regulating hazardous material operations. The Certified United program Agency (CUPA) regulates above ground and underground tanks is an arm of the Glenn County Air Pollution Control District.

California Environmental Protection Agency

The California Environmental Protection Agency (Cal-EPA) establishes rules governing the use of hazardous materials and the management of hazardous waste. Applicable state and local laws include the following:

- Public Safety/Fire Regulations/Building Codes
- Hazardous Waste Control Law
- Hazardous Substances Information and Training Act
- Air Toxics Hot Spots and Emissions Inventory Law
- Underground Storage of Hazardous Substances Act
- Porter-Cologne Water Quality Control Act

Subsequent development under the proposed General Plan may be subject to one or more of the above laws.

Department of Toxic Substances Control

Within Cal-EPA, the Department of Toxic Substances Control has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the state agency, for the management of hazardous materials and the generation, transport and disposal of hazardous waste under the authority of the Hazardous Waste Control Law (HWCL).

City of Orland General Plan

The adopted City of Orland General Plan is currently used as the "blueprint" to guide future development within the city limits and in unincorporated portions of the existing Planning Area. The proposed General Plan would replace the policies found in the adopted General Plan related to hazardous materials.

4.6.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, geology, soils and hazardous materials impacts are considered to be significant if the following could result from the implementation of the proposed General Plan:

1) Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury or death, involving:

   a. 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;

   b. Strong seismic ground shaking;

   c. Seismic-related ground failure, including liquefaction;

   d. Landslides.

2) Substantial soil erosion or the loss of topsoil.

3) Location of development on a geologic unit or soil that is unstable, or that would become unstable as a result of development, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

4) Location of development on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

5) Location of development on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems, where sewers are not available for the disposal of wastewater.

6) Creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

7) Creation of 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.

8) Hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

9) Location of development 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, creation of a significant hazard to the public or the environment.

10) Impairment of the implementation of, or physical interference with, an adopted emergency response plan or emergency evacuation plan.

11) Loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

12) Loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

METHODOLOGY

This analysis of geologic resources, geologic hazards, human health, and risk of upset included the review of existing documentation, field review of the proposed Planning Area, and consultation with applicable local, state, and federal agencies. Documentation related to hazardous materials included a review of hazardous material site information on the website of the California Department of Toxic Substances Control. Also reviewed was a California Geological Survey report on naturally occurring asbestos and a U.S. Environmental Protection Agency/Environment Canada joint document on PCBs. Refer to Section 4.7, Hydrology and Water Quality, for a discussion of impacts associated with water quality, flooding, and dam inundation. Hazards associated with transportation facilities, including potential hazards associated with Haigh Field operations, are described in Section 4.13, Transportation and Circulation. Section 4.11, Community Services, provides information on potential wildfire hazards.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Potential Seismic Hazards

Impact 4.6.1 Implementation of the proposed General Plan may result in the placement of structures and development in areas of seismic sensitivity. This is considered a **potentially significant** impact.

The proposed General Plan Planning Area, as with virtually all sites within the State of California, is subject to minor ground shaking and potential secondary hazards (i.e., liquefaction and subsidence) as a result of earthquakes. The primary seismic hazard associated with the Planning Area is minor ground shaking, which can result in partial collapse of buildings and extensive damage in poorly built or substandard structures. The Orland General Plan Planning Area is not located within an Alquist-Priolo earthquake hazard zone. The closest active fault system is the 40-mile-long Willows fault, located about 10 miles west of the City. As such, future seismic events associated with this fault system are not anticipated to adversely affect the Planning Area, and ground rupture due to faulting is considered to be unlikely.

Based upon the seismologic and geologic conditions within the Planning Area, significant damage or risk due to earthquake activity is relatively unlikely. The City adopted the 2001 California Code of Regulations, Title 24, also known as the California Building Standards Code or California Building Code. Implementation of these regulations throughout development is designed to prevent significant damage from ground shaking during seismic events resulting from movement on any of the faults or fault systems discussed within this DEIR.

The potential for soil liquefaction due to earthquakes and ground shaking is considered minimal due to the highly unlikely chance of an earthquake in the region. However, the potential for liquefaction does exist in the case of an earthquake. Liquefaction is the process in which water is combined with unconsolidated soils as a result of seismic activities involving ground motions and pressure. Areas paralleling Stony Creek at the northern boundary of the Planning Area, which contain clean sand layers with low relative densities coinciding with a relatively high water table, are estimated to have generally high liquefaction potential. However, based upon known soil, groundwater, and ground shaking conditions, the potential for liquefaction within the majority of the Planning Area is considered low.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Safety: Policy 4.6.A, Program 4.6.A.1, Program 4.6.A.2, Program 4.6.A.3, Program 4.6.A.4, Policy 4.6.B, Policy 4.6.C

Policy 4.6.A and Program 4.6.A.1 require the City to consider the potential for expansive soils and earthquake-related hazards when reviewing applications for development projects. In most cases the City may require a soils report in order to evaluate shrink-swell and liquefaction potential of proposed project sites and implement measures to minimize unstable soil hazards. Program 4.6.A.2 requires that public buildings and areas designed for assembly within the Planning Area are constructed to meet seismic safety standards. Program 4.6.A.3 and Program 4.6.A.4 provide assistance to owners of existing buildings making structural improvements to meet seismic standards. Policy 4.6.C requires development applications for projects that extract groundwater, oil, or gas to include a report evaluating the potential for subsidence and appropriate mitigation measures.

The following mitigation shall be implemented.

Mitigation Measures

MM 4.6.1 The following measure shall be implemented as a program under Policy 4.6.A of the proposed General Plan:

The City shall require that all construction comply with the California Building Code, including the requirements for seismic design. The City shall incorporate updated and revised versions of the California Building Code, and public buildings designed for assembly such as schools and police stations shall be constructed to meet state seismic safety and building standards.

Mitigation measure **MM 4.6.1** and the proposed City of Orland General Plan policies and programs will require adherence to the California Building Code and retain the option of requiring a geotechnical investigation prior to site development. This would reduce the effects resulting from earthquakes, ground shaking, liquefaction, and other secondary hazards within the City's Planning Area to a minimum. This impact is considered to be **less than significant**.

Potential Increase of Erosion and Loss of Topsoil

Impact 4.6.2 Implementation of the proposed General Plan may result in substantial construction and site preparation activities. These activities increase soil erosion, wind and water erosion, and siltation of local drainages during construction, excavation and grading activities. This is considered to be a **less than significant** impact.

Most soils in the proposed Planning Area have low erosion potential due to vegetation cover and lack of slopes. Implementation of the proposed General Plan would result in the potential construction of new roadways, improvements to existing roadways, potential construction of substantial infrastructure (water and sanitary sewer facilities), and the potential for additional commercial, residential, and industrial development. The grading and site preparation activities associated with such development would remove topsoil, disturbing and potentially exposing the underlying soils to erosion from a variety of sources, including wind and water. In addition, construction activities may involve the use of water, which may further erode the topsoil as the water moves across the ground.

New development would involve paving and other site improvements, substantially increasing the amount of impervious surfaces (incapable of being penetrated by water). These impervious surfaces generate higher levels of runoff (i.e., erosion from site preparation, sediment deposition from stormwater runoff, and automobile fluids). The increased runoff has the potential to adversely affect surface water and groundwater quality in the area. If not properly managed, the runoff could greatly affect the quality of wetlands located in the General Plan Planning Area (Stony Creek). The reader is referred to Section 4.7, Hydrology and Water Quality, for a further discussion regarding erosion and water quality.

Because construction and the resulting potential erosion may affect water quality, any development involving clearing, grading, or excavation that causes soil disturbance on one or more acres, or any project involving less than one acre that is part of a larger development plan and includes clearing, grading, or excavation, is subject to a National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit. Any development of this size would be required to prepare and comply with an approved Storm Water Pollution Prevention Plan (SWPPP).

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, and Public Facilities: Program 5.6.A.1, Program 5.6.A.2

Program 5.6.A.1 requires applicants for new development projects to adhere to Regional Water Quality Control Board discharge standards, including identifying specific measures for minimizing project related erosion. Program 5.6.A.2 requires development projects to conform to standard Regional Water Quality Control Board best management practices as a means to minimize erosion impacts.

Through the required NPDES Permit, projects are evaluated for potential soil erosion impacts on a site-by-site basis. As impacts are dependent on the type of development, intensity of development, and amount of lot coverage of a particular project, impacts due to soil erosion can vary. However, compliance with adopted erosion control standards and NPDES and SWPPP requirements, as well as implementation of the proposed General Plan programs listed above, would ensure that the proposed General Plan soil erosion-related impacts are **less than significant.**

Mitigation Measures

None required.

Potential Development on Unstable Soils

Impact 4.6.3 Implementation of the proposed General Plan may allow for development in areas with unstable soils. This is considered a **less than significant** impact.

As previously discussed, the Orland Planning Area has a low to high potential for expansive soils. A soil's potential to shrink and swell depends on the amount and types of clay in the soil. Certain clays expand when wet and disproportionately shrink when dry. Soils with moderate to high shrink/swell potential tend to expand during wet seasons and shrink during dry seasons. In addition, soils with moderate to high shrink-swell potential generally have low plasticity levels which affect the expansion potential of soils. Portions of the proposed General Plan Planning Area could contain layers of highly expansive soils dispersed throughout the area, which could

pose development constraints. Highly expansive soils can cause structural damage to foundations and roads and are less suitable for development than non-expansive soils.

According to the Glenn County General Plan, the Orland Planning Area has a low to high potential for expansive soils. A map of expansive soils in the Glenn County General Plan shows the majority of expansive soils west of Interstate 5. Detailed geologic investigations may be necessary for areas with moderate to high shrink-swell potential. Development on expansive soils requires special grading and construction techniques.

As previously noted, the City has adopted the 2007 California Building Code. The California Building Code includes common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil-related impacts. In addition, for subdivision projects requiring a final map, the Subdivision Map Act requires a preliminary soils report.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Safety: Policy 4.6.A, Program 4.6.A.1, Program 4.6.A.2, Program 4.6.A.3, Program 4.6.A.4, Policy 4.6.B, Policy 4.6.C

Policy 4.6.A and Program 4.6.A.1 require the City to consider the potential for expansive soils and earthquake-related hazards when reviewing applications for development projects. In most cases, the City shall require a soils report in order to evaluate shrink-swell and liquefaction potential of proposed project sites and implement measures to minimize unstable soil hazards. Program 4.6.A.2 requires that public buildings and areas designed for assembly within the Planning Area are constructed to meet seismic safety standards. Program 4.6.A.3 and Program 4.6.A.4 provide assistance to owners of existing buildings making structural improvements to meet seismic standards. Policy 4.6.C requires development applications for projects that extract groundwater, oil, or gas to include a report evaluating the potential for subsidence and appropriate mitigation measures.

The proposed City of Orland General Plan policies and programs and implementation of mitigation measure **MM 4.6.1** will require adherence to the California Building Code and require a geotechnical investigation prior to site development. This would reduce the effects resulting from developing on unstable soils within the City's Planning Area to a minimum. This impact is considered to be **less than significant**.

Mitigation Measures

None required.

Septic System Operation

Impact 4.6.4 Implementation of the proposed General Plan could impact areas where soils may be incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems. This would be a **less than significant** impact.

The City of Orland provides wastewater collection and treatment services to all of its residents within the city limits. Land uses in other unincorporated portions of the proposed Planning Area rely on individual septic systems for their wastewater disposal.

Soils within rural residential areas that do not adequately support the use of septic systems or alternative wastewater disposal systems could lead to the contamination of groundwater.

Upon annexation to the City, all new development is required to connect to a public sewer system. Septic systems or alternative wastewater disposal systems would be permitted in areas where on-site treatment and disposal facilities are deemed appropriate and beneficial to the City.

Currently, the Glenn County Environmental Health Department is responsible for oversight of the design and installation of on-site sewage disposal systems throughout Glenn County, pursuant to County Code Section 20 Chapter 6, Sewage Disposal Systems. This includes any area currently outside of Orland city limits. All newly installed septic systems are required to adhere to the latest version of the California Building Code. The regulations for Glenn County are dictated by the geology of the region where the system is installed. The type of system parcels require depends primarily on where the parcel is located. The most frequently installed system is the standard pit system. This type of system is used in areas where it has been determined that the system would be less likely to degrade the water table and the soil conditions are such that effluent will be more readily absorbed into the pit area. If the parcel to be developed is in an area where the water table is high or soil conditions are poor, a leach field or deep trench may be required.

In cases where it is not possible to install a standard pit system or a leach field system, an alternative system is required, but it must be approved for use in Glenn County. Although the Glenn County Environmental Health Department would have to approve any future proposed septic system, the following proposed General Plan policies and action items would also reduce impacts.

Proposed General Plan Policies and Programs That Mitigate Potential Impacts

Public Facilities: Policy 5.8.B, Program 5.8.A.1

Policy 5.8.B requires all sewage generators within the city limits to connect to the City's system, except those areas where on-site treatment and disposal facilities are deemed appropriate and beneficial to the City. Program 5.8.A.1 requires annexation to the City as a condition of extending City services.

Compliance with the Glenn County Environmental Health Department's requirements for the approval and installation of septic systems, including Section 20 Chapter 6, Sewage Disposal Systems, as well as implementation of the above proposed General Plan policies and associated programs, would ensure that impacts due to soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems within the Planning Area are mitigated to **less than significant**.

Mitigation Measures

None required.

Hazardous Material Use, Storage, and Transport

Impact 4.6.5 Implementation of the proposed General Plan would lead to the establishment of more land use activities that would use and/or store hazardous materials and increase the amount of traffic carrying these materials. This is considered a **less than significant** impact.

The proposed General Plan encourages development of a range of land uses. Many of these uses, particularly commercial and industrial, would involve the use, transport, and/or storage of hazardous materials (e.g., gasoline fuels, demolition materials, asphalt, lubricants, toxic solvents, pesticides, and herbicides) during the construction and operation of such uses. Implementation of the proposed General Plan would likely increase the use of hazardous materials in the proposed Planning Area. This would increase the likelihood of local residents and employees coming into contact with such materials, as well as increase the potential risk of an accident that could cause serious injury or death. The use, storage, and transport of hazardous materials during the course of future development are required to be in compliance with local, state, and federal regulations during project construction and operation.

Moreover, increased usage of hazardous materials due to additional development would result in more such materials being transported to the Planning Area. Risks associated with the transport of hazardous material include accidents or spills that release these materials into the environment.

The transport of hazardous materials on public highways is controlled by the California Highway Patrol and the California Department of Toxic Substances Control through the issuance of permits for such use. The use and handling of hazardous materials on private property is controlled by the Glenn County Environmental Health Department.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Safety: Policy 4.7.A, Program 4.7.A.1, Program 4.7.A.2, Program 4.7.A.3, Policy 4.7.B

Policy 4.7.A and Program 4.7.A.1 mandate the City to coordinate hazardous waste management programs with the Glenn County Hazardous Waste Management Plan and the Glenn County Emergency Operations Plan. Program 4.7.A.2 ensures compliance with applicable state and local regulations by requiring the City to refer all permits for new projects or major additions to existing uses located on sites identified by the state as having or containing hazardous substances to the Glenn County Health Department. Program 4.7.A.3 requires any use which uses or manufactures hazardous substances within one-quarter mile of an existing or proposed school to only be permitted through a conditional use permit with ample assurances that the students will not be placed in a hazardous environment. Policy 4.7.B encourages Hazardous Materials First Responder Operation training and certification for appropriate public safety personnel.

Implementation of the proposed Orland General Plan policies and associated programs listed above, as well as adherence to all federal, state, and local regulations regarding the transportation of explosives, poisonous inhalation hazards, and radioactive materials, would reduce the environmental impacts associated with the routine transportation, use, and disposal of hazardous materials within the General Plan Planning Area to **less than significant**.

Mitigation Measures

None required.

Release of Hazardous Materials

Impact 4.6.6 The Planning Area consists of land uses having the potential to result in the release of hazardous materials. Although there are federal, state, and local laws in place to minimize accidental release of hazardous materials, there is

potential hazard to the public and the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. This is considered a **potentially significant** impact.

All uses that handle potentially hazardous materials are required, prior to issuance of a building permit or license, to obtain approval of a hazardous material permit from the County Environmental Health Department. The hazardous material permit requires the applicant to list all hazardous materials used or generated in the operation of their business. Their plan to store, handle, or release these hazardous materials must receive the approval of the County Environmental Health Department. The business is monitored by the Environmental Health Department on a regular basis to determine compliance with the hazardous material permit approved by the department.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Safety: Policy 4.7.A, Program 4.7.A.1, Program 4.7.A.2, Program 4.7.A.3, Policy 4.7.B

Policy 4.7.A and Program 4.7.A.1 mandate the City to coordinate hazardous waste management programs with the Glenn County Hazardous Waste Management Plan and the Glenn County Emergency Operations Plan. Program 4.7.A.2 ensures compliance with applicable state and local regulations by requiring the City to refer all permits for new projects or major additions to existing uses located on sites identified by the state as having or containing hazardous substances to the Glenn County Health Department. Program 4.7.A.3 requires any use which uses or manufactures hazardous substances within one-quarter mile of an existing or proposed school to only be permitted through a conditional use permit with ample assurances that the students will not be placed in a hazardous environment.

Mitigation Measures

MM 4.6.6 The following measure shall be incorporated as a program under Policy 4.7.A of the proposed General Plan:

As part of its Development Review process, the City shall require project applicants to submit a Phase I Environmental Site Assessment for their project site if the City determines the project may be on or near a potentially contaminated site. The Phase I Environmental Site Assessment shall identify the potential for asbestos, lead, and PCBs to occur on the project site. The City may require a more detailed site assessment (i.e., Phase II Environmental Site Assessment) if it concludes that site conditions warrant further analysis. If contamination of a project site is identified, the City shall require actions that eliminate the hazard posed by the contamination or reduce it to a level that is less than significant.

Implementation of the proposed General Plan policies and programs listed above as well as mitigation measure **MM 4.6.6** would reduce the environmental impacts associated with the release of hazardous materials within the Planning Area to **less than significant**.

Mineral Resources

Impact 4.6.7 Implementation of the proposed General Plan could potentially result in the loss of availability of aggregate resources, which are locally important due to

their use by the construction community in development of the area. This is considered to be a **less than significant** impact.

The sand and gravel currently mined in the region is used primarily for construction. Construction aggregates are an important, fundamental building material used extensively as a foundation and road base material. In terms of volume and price, there is presently no economically viable substitute for aggregate products. The demand for aggregate products in the region has increased with the region's population and corresponding physical growth. Under the proposed General Plan, demand is expected to increase, as population and physical growth continue to increase. Should known resources become depleted or unavailable, the aggregates industry will need to relocate or begin importing, at a much higher cost, from more distant areas.

As previously stated, three gravel extraction facilities are in operation along Stony Creek near the Planning Area. However, there is currently no mining activity occurring within, nor is it allowed in, the proposed Planning Area. Furthermore, neither the current City of Orland General Plan, the proposed General Plan, nor the Glenn County General Plan identify any mineral resource zones within the City of Orland or the Planning Area. Therefore, implementation of the proposed General Plan would have a **less than significant** impact on mineral resources.

Mitigation Measures

None required.

Interfere With Emergency Response Plans

Impact 4.6.8 Implementation of the proposed General Plan could impair implementation of or physically interfere with the Glenn County Emergency Operations Plan (EOP). This is considered a **less than significant** impact.

An efficient roadway and circulation system is vital for the evacuation of residents and the mobility of fire suppression, emergency response, and law enforcement vehicles. Implementation of the proposed General Plan will add additional traffic and residences requiring evacuation in case of an emergency.

However, as described in Section 4.13, Transportation and Circulation, compared to existing conditions, implementation of the proposed roadway system under the proposed General Plan would provide for multiple roadway connections that offer more escape route and emergency access options, as well as new north-south and east-west evacuation/emergency routes throughout the Planning Area. Standard evacuation routes have not been designated within Glenn County or the City of Orland. However, the Glenn County Sheriff's Office, Office of Emergency Services (OES), has an online link to an emergency preparedness Web page stating that in the event of mandatory evacuation, residents will be advised of safe routes to follow, locations of shelters, and other actions that may need to be taken.

The Glenn County Sherriff's Office has several means of notifying the public of emergencies and possible evacuations, which include a prerecorded telephone message from the Sheriff's Department, local radio and television station announcements, and the Emergency Broadcast System. In the event of extreme cases and/or the inability to contact residents in another manner, the Sheriff's Department would go door to door.

The City of Orland website at www.cityoforland.com also provides a link to the Glenn County Sheriff's Department information through the Orland Police Department's Web page.

It is likely that Caltrans facilities such as State Route 32 and Interstate 5 would be used to evacuate the community in an emergency. Major county roads such as Sixth Street (County Road 99W) and South Street are also suited to evacuation, depending on the location of the emergency. These routes are all identified as arterials in the Circulation Element of the proposed City of Orland General Plan.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Safety: Policy 4.1.B, Program 4.1.B.1, Program 4.1.B.2

Policy 4.1.B requires the City to continue to participate in emergency preparedness planning with Glenn County. Program 4.1.B.1 requires the City to review procedures for local implementation of the County Emergency Operations Plan and help to educate the community on the need for emergency preparedness. The Orland Police Department is trained in the Standardized Emergency Management System (SEMS) Manual in conjunction with the California Highway Patrol and the Glenn County Sheriff's Department. Program 4.1.B.2 requires the City to pursue adoption of the State of California SEMS.

Implementation of the proposed roadway system within the proposed General Plan would improve City roadway connectivity, allowing for better emergency vehicle access to residences as well as evacuation routes for area residents. The policies and programs listed above will assist in the operation of the EOP, not impair it. Therefore, this impact is considered **less than significant**.

Mitigation Measures

None required.

4.6.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING – GEOLOGY AND SOILS

Site-specific topography, soil conditions, and surrounding development generally determine geological, soil, and mineral resource related impacts, which generally are not considered cumulative in nature. However, surficial deposits, namely erosion and sediment deposition, can be cumulative in nature, depending on the type and the amount of development proposed in a given geographical area. Further, land uses that contribute to the prevention of mining mineral resources recovery can contribute to the cumulative loss of availability of such resources.

Construction constraints are based on specific sites within a proposed development and each site's soil characteristics and topography. As previously discussed, all new development and redevelopment within the General Plan Planning Area boundaries must comply with the 2007 California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code (CBSC). Individual development projects may be required to submit a geotechnical report, which contains construction and design guidelines and site-specific recommendations to reduce potential geologic and soil-related hazards. Additionally, any new development disturbing one acre of land or more is subject to a National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit, and all applicants are required to prepare and comply with an approved Storm Water Pollution Prevention Plan (SWPPP) that serves to reduce soil erosion-related impacts.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Geological and Seismic Hazards

Impact 4.6.9 Cumulative development in the City has the potential to locate buildings and persons in areas considered to be potentially hazardous. This is considered a **less than cumulatively considerable** impact.

Given the General Plan Planning Area's geologic and soil composition, as well as the required compliance with standard building standard requirements, the proposed City of Orland General Plan's cumulative geology and soil impacts are considered **less than cumulatively considerable**.

Mitigation Measures

None required.

CUMULATIVE SETTING – HAZARDOUS MATERIALS

The cumulative setting for hazards and human health risks associated with the proposed General Plan includes the City of Orland Planning Area. Hazardous material, human health, and safety impacts as described in CEQA Appendix G are generally site-specific and not cumulative by nature. The potential cumulative impacts due to the increased use of hazardous materials resulting from proposed development under the proposed General Plan include, but are not limited to, air quality, noise, water quality, flooding, and fire, as well as exposure to multiple contaminants. The cumulative impacts associated with affected resources, such as air and water, are analyzed in the applicable technical sections of this DEIR.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Hazards and Health Risks

Impact 4.6.10 Implementation of the proposed City of Orland General Plan could expose persons to hazards throughout the life of the General Plan. This is considered a **less than cumulatively considerable** impact.

The cumulative effects from land uses proposed in association with the proposed General Plan could create a risk to public health from exposure to natural hazards (e.g., flooding and fire) and hazardous materials (groundwater contamination, PCB-containing transformers, USTs/ASTs, etc.). Natural hazards and hazardous material-related impacts are generally site-specific and each individual development is responsible for mitigating such risks. Exposure to natural hazards can be controlled through proper site design, best management practices during construction and operation, compliance with established building requirements, and appropriate zoning. Various land uses (commercial, industrial, schools, and even residential properties) will use limited hazardous materials during construction and operational activities. All new and existing projects are required to comply with all federal, state, and local regulations regarding the handling, transportation, and disposal of hazardous materials. Therefore, the proposed General Plan's cumulative hazardous material impacts and threats to public health are considered **less than cumulatively considerable.**

Mitigation Measures

None required.

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4.7 HYDROLOGY AND WATER QUALITY

This section analyzes potential impacts of the proposed General Plan on hydrology and water quality. Specifically, this section describes drainage features within the proposed Planning Area and addresses key issues associated with storm drainage and flooding (stormwater and river/levee), surface water quality, groundwater, and exposure of structures to flood hazards. Information in this section was based on interpretations of regulations, available data, available reports and other information, and information obtained from City staff and other governmental agencies.

4.7.1 EXISTING SETTING

REGIONAL HYDROLOGY

The City of Orland is located in the Sacramento River Valley and is approximately 10 miles west of the Sacramento River itself. The Sacramento River flows in a south/southeasterly direction through the Sacramento River Valley.

According to the California Department of Water Resources, the state has been subdivided into ten hydrologic regions.[1] The City of Orland is located in the central portion of the Sacramento River Hydrologic Region, which covers approximately 17.4 million acres (27,200 square miles) (DWR, 2006). The region includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties (**Figure 4.7-1**). Geographically, the region extends south from the Modoc Plateau and Cascade Range at the Oregon border to the Sacramento-San Joaquin Delta. The Sacramento Valley, which forms the core of the region, is bounded to the east by the crest of the Sierra Nevada and southern Cascades and to the west by the crest of the Coast Range and Klamath Mountains. Another significant feature within the Sacramento River Hydrologic Region is the Sacramento River, which is the longest river system in the State of California. Major tributaries to the Sacramento River are the Pit, Feather, Yuba, Bear, and American rivers.

The Sacramento River Hydrologic Region is the main water supply for much of California's urban and agricultural areas. Annual runoff in the Sacramento River Hydrologic Region averages about 22.4 million acre-feet, which is nearly one-third of the state's total natural runoff. Major water supplies in the region are provided through surface storage reservoirs. Two of the largest surface water projects in the region are the Shasta Dam Reservoir, on the upper Sacramento River watershed, and the Oroville Dam, on the Feather River watershed. In all, there are more than 40 major surface water reservoirs in the region. Municipal, industrial, and agricultural supplies to the region are about 8 million acre-feet, with groundwater providing about 2.5 million acre-feet of that total. Much of the remainder of the runoff goes to dedicated natural flows, which support various environmental requirements, including in-stream fishery flows and flushing flows in the Delta.

LOCAL SURFACE WATER FEATURES

The main surface water features in the Planning Area are Stony Creek and Hambright Creek. The Tehama-Colusa Canal, which supplies irrigation water to the western Sacramento Valley, is also located along the eastern boundary of the Planning Area, and several manmade channels traverse the region.

[1] California Department of Water Resources Bulletin 160-98, titled "The California Water Plan Update."

Stony Creek Watershed

The Stony Creek watershed encompasses approximately 700 square miles and is the second largest Sacramento River tributary on the west side of the Sacramento Valley (Glenn County, 2001). There are three major impoundments on Stony Creek: Black Butte, Stony Gorge, and East Park reservoirs. According to the Stony Creek Watershed Program, several issues are unique to Stony Creek from Black Butte Dam downstream to the Sacramento River. The principal issues of this reach are as follows:

- Accelerated channel erosion and resulting property damage;
- Displacement of native riparian vegetation by invasive exotic weeds;
- Degraded aquatic habitat, including that needed for anadromous and resident fish populations;
- Accelerated erosion and channel modifications resulting in increased temperatures and sediment discharges;
- A modified hydrology (resulting from Black Butte Dam operations) characterized by punctuated stream flows that impede the system from achieving equilibrium and that have adverse impacts on aquatic life, habitat, and channel stability.

The proposed General Plan includes policies and programs to protect the Stony Creek watershed. Policy 5.6.A and associated Programs 5.6.A.1 and 5.6.A.2 ensure that new development projects comply with state and federal regulations and standards in order to maintain and improve water quality. Program 5.6.A.3 requires the City to ensure that new development has minimal impacts on natural drainage channels and flow capacity.

Hambright Creek

Hambright Creek is a relatively small tributary watershed (approximately 18 square miles in area) of Stony Creek and is shown on U.S. Geological Survey maps as intermittent, or flowing at intervals, over its entire length. The current confluence of Hambright and Stony creeks is located just outside the northeastern city limits of Orland (see **Figure 4.7-3**). Hambright Creek is largely ephemeral, flowing only after rainfall of a sufficient magnitude, over much of its reach. There are no stream gauges on Hambright Creek.

Other Water Features

A major canal traverses the southeastern portion of the Planning Area. The Tehama-Colusa Canal begins at the Red Bluff Diversion Dam and trends southward through Glenn County eventually terminating near Dunnigan in Yolo County. In addition, the entire Planning Area is crisscrossed by a system of smaller concrete-lined canals, which distributes water for irrigation to area agricultural users.

GROUNDWATER

Groundwater in the proposed Planning Area comes from the Colusa Subbasin, a portion of the Sacramento Valley Groundwater Basin, as shown in **Figure 4.7-1** and **Figure 4.7-2**. The portion of the Sacramento Valley within the Colusa Subbasin is bounded on the east by the Sacramento River, on the west by the Coast Range and foothills, on the south by Cache Creek, and on the

north by Stony Creek. The Colusa Subbasin aquifer system is composed of continental deposits of late Tertiary to Quaternary age. Quaternary deposits include Holocene stream channel and basin deposits and Pleistocene Modesto and Riverbank formations. The Tertiary deposits consist of the Pliocene Tehama Formation and the Tuscan Formation.

The storage capacity of the subbasin was projected based on estimates of specific yield for the Sacramento Valley as developed in DWR Bulletin 118 (DWR, 2006). The estimated storage capacity to a depth of 200 feet is approximately 13,025,887 acre-feet. Estimates of groundwater extraction for the Colusa Subbasin are based on surveys conducted by the California Department of Water Resources during 1993, 1994, and 1999. Surveys included land use and sources of water. Estimates of groundwater extraction for agricultural, municipal and industrial, and environmental wetland uses are 310,000; 14,000; and 22,000 acre-feet, respectively. Deep percolation from applied water is estimated to be 64,000 acre-feet. The Department of Water Resources has not identified the Colusa Subbasin as overdrafted in its DWR Bulletin 118. Also, there has been no indication of any existing or anticipated overdraft condition in studies prepared by other entities (DWR, 2006).

Numerous agricultural water suppliers overlay the Colusa Subbasin. As a result of agricultural and domestic groundwater use within the subbasin, groundwater levels vary seasonally. Generally, groundwater level data show an average seasonal fluctuation of approximately 5 feet for normal and dry years.

Despite seasonal variations, long-term groundwater levels of the Colusa Subbasin have remained relatively constant. This condition is likely the result of a combination of recharge from the river and surrounding mountains, as well as deep percolation of applied irrigation water from agricultural practices and rainfall throughout the Colusa Subbasin. A review of hydrographs for long-term comparison of spring-to-spring groundwater levels indicated a slight decline in groundwater levels associated with the 1976-77 and 1987-94 droughts, followed by recovery to pre-drought conditions of the early 1970s and 1980s. Some wells increased in levels beyond the pre-drought conditions of the 1970s during the wet season of the early 1980s. Generally, groundwater level data show an average seasonal fluctuation of approximately 5 feet for normal and dry years. Overall, there does not appear to be any increasing or decreasing trends in groundwater levels.

According to the Glenn County General Plan Environmental Setting Technical Paper (1993), the greatest amount of natural recharge occurring in the Planning Area occurs in the Stony Creek area. The aquifer underlying the Planning Area receives recharge from a number of sources. The relative importance of each of these sources depends on hydraulic conditions, the specific geographical area, and land uses in that area. On the Stony Creek Fan, recharge comes from the following sources:

- Infiltration of winter rains
- Deep percolation of agriculturally applied water
- Seepage from Stony Creek

The City of Orland's primary water system, Public Water System 1110001, consists of seven wells distributed throughout the City. The wells have an average depth of approximately 200 feet, and the average depth of groundwater is generally between 20 and 50 feet. Pressure for the City water system is provided by gravity flow from an 80,000 gallon elevated storage tank. The wells produce between approximately 500 and 1,200 gallons per minute each.

WATER QUALITY

Surface Water

Water quality for all surface and ground waters for the Sacramento Valley is regulated under the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB). Water quality standards for all waters in the region are discussed in the region's Basin Plan. The region's Basin Plan covers the entire area included in the Sacramento and San Joaquin River drainage basins. As stated above, the Sacramento River drainage basin covers 27,200 square miles and includes the entire area drained by the Sacramento River including the Orland area.

Under Section 303(d) of the federal Clean Water Act, each state must prepare a list of waters that are not meeting applicable water quality standards. Streams within the Planning Area, which include Stony Creek and Hambright Creek, are not listed on the "303(d) list."

Groundwater

Within the Colusa Subbasin, calcium-magnesium bicarbonate and magnesium-calcium bicarbonate are the predominant groundwater types. Groundwater in the Sacramento Valley has generally lower dissolved solid concentrations than other sub-regions in the Central Valley. In general, dissolved solid concentrations increase as the depth increases in the aquifer system. Therefore, the deeper wells are likely to produce water with larger dissolved solid concentrations than the shallower wells in the aquifer system.

Geologically, the Sacramento Valley is a large trough filled with sediments having variable permeability rates; as a result, wells developed in areas with coarser aquifer materials will produce larger amounts of water than wells developed in fine aquifer materials. In general, well yields in the Sacramento Valley are good and range from one hundred to several thousand gallons per minute (DWR, 2003). As surface water supplies have been so abundant in the Sacramento Valley, groundwater supply primarily supplements the surface water supply. Yet with changing environmental laws and requirements, this balance is shifting to a greater reliance on groundwater, and conjunctive use of both supplies is occurring to a greater extent throughout the Sacramento Valley, particularly in drought years. Groundwater provides all or a portion of the municipal supply in many Sacramento Valley towns and cities including Orland (DWR, 2003). Groundwater is the primary source of domestic water supply in the Planning Area.

Public Water System Number 1110001 serves the City and consists of seven wells. The wells are identified as Central Street Well, Railroad Avenue Well, Woodward Avenue Well, Corporation Yard Well, Eighth Street Well, Suisun Street Well, and Roosevelt Avenue Well. These wells are distributed throughout the City and range in depth from 150 feet to 400 feet. The wells produce between 600 and 1,200 gallons per minute each and are automatically regulated by the water level in the elevated water storage tank.

According to the City of Orland Engineer, the City water supply does not have water quality or contamination issues. Continuous disinfection is provided for the City's seven wells. Water treatment is a preventative measure due to intermittent positive bacteriological test of the wells. The aquifer underlying the Planning Area receives recharge from a number of sources. The greatest amount of natural recharge occurs in the Stony Creek area, with additional recharge coming from deep percolation of agriculturally applied water and normal surface percolation following rains. Groundwater is particularly vulnerable to contamination in the Stony Creek area, with potential sources of groundwater pollutants including chemicals used in the growing and processing of agricultural products, industrial sources, and improper installation of septic tank systems.

Groundwater Basins in California

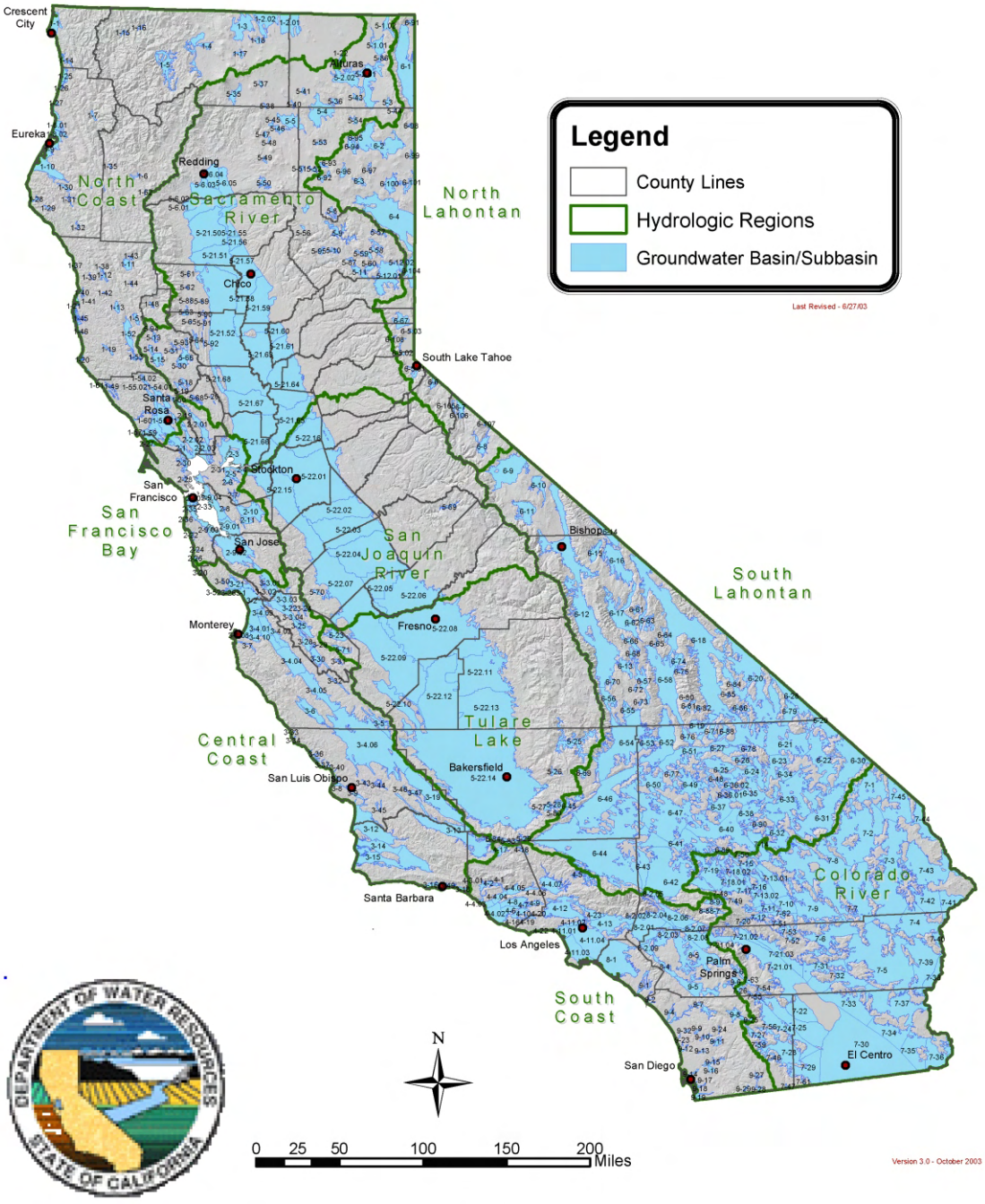


FIGURE 4.7-2
GROUNDWATER BASINS OF CALIFORNIA

PMC

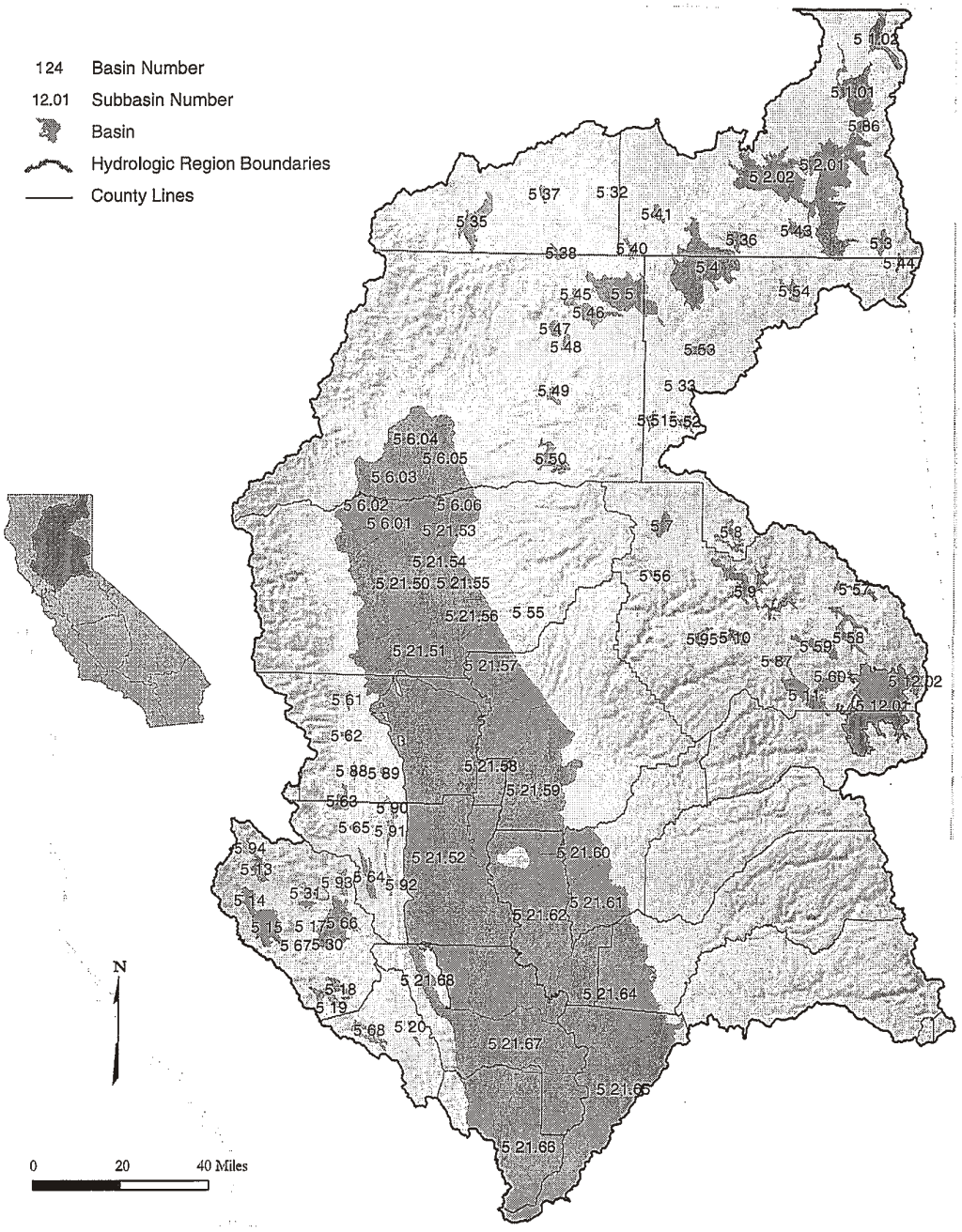


FIGURE 4.7-1
SACRAMENTO RIVER HYDROLOGIC REGION

PMC

Figure 4.7-3

Surface Water Features

- Planning Area
- City Boundary
- Surface Water Feature

0 0.25 0.5 Miles

CITY OF ORLAND 1875

PMC

CLIMATE

Orland's climate is generally characterized as Mediterranean, with hot, dry summers and moderate to cool, wet winters. Summers are characterized by abundant sunshine and light winds (6 to 8 miles per hour generally from the northwest in the winter and from the south in the summer). The lack of moisture during the summer makes irrigation necessary in any intensified agricultural program. Winter rains provide moisture for dry farming and growth of annual native range grasses and forbs.

Annual precipitation is variable with an average of 15 inches, most of which falls during the winter. Humidity varies from 70 to 90 percent in winter and from 25 to 60 percent in the summer. The mean annual temperature is 62°F with extreme highs up to 117°F. The mean minimum temperature in January averages 36°F. Cold snaps occasionally occur, dropping temperature from 0°F to 20°F (BOR, 1998).

FLOODING

Areas adjacent to Stony Creek and Hambright Creek are subject to flooding during heavy rainfall. Severe flooding in Orland is prevented by flood control dams on Stony Creek and the Sacramento River. A designated floodway has been mapped and adopted by the State Reclamation Board for Stony Creek. The State has jurisdiction within this designated floodway and supersedes local control.

Flood hazard areas within the City of Orland Planning Area have been mapped by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps (FIRM). These maps are designed for use in determining flood insurance needs, but do not necessarily show all areas subject to flooding, such as agricultural areas which have flooding potential due to irrigation water delivery systems and agricultural practices. Orland currently does not participate in the FEMA Federal Insurance Rate Mapping program.

According to the FEMA Flood Insurance Rate Map, most of the area along the northern boundary of the City Planning Area is in either flood zone A or X, which means the area is subject to flooding (see **Figure 4.7-4**). Areas directly adjacent to Stony Creek and Hambright Creek are in flood zone A (subject to a 100-year flood event). Areas outside of zone A and designated as zone X are subject to 500-year flood events. Zone X overlaps small portions of Orland's northern city limits. The remainder of the Planning Area is not subject to 100- or 500-year flood events.

DAM INUNDATION

Dam failure, the collapse or failure of an impoundment that causes significant downstream flooding, is a potential hazard for the City of Orland. Flooding of the area below the dam may occur as a result of structural failure of the dam or overtopping. The collapse and structural failure of a dam may be caused by a severe storm, earthquakes, or internal erosion of piping caused by embankment and foundation leakage. Larger dams that would inundate significant portions of Orland include the Shasta Dam (in Shasta County) and Black Butte Dam on Stony Creek.

Shasta Dam was constructed as a feature of the federal Central Valley Project and is operated by the U.S. Bureau of Reclamation. It is located approximately 70 miles north of the City of Orland with an estimated capacity of 4.5 million acre-feet. In the event of a failure, water would flow into the Sacramento River and inundate several miles west of the Sacramento River into the City of Orland.

Oroville Dam is a large earthen dam located on the Feather River, near the City of Oroville. The dam was constructed as a major component of the State Water Project to provide water for the growing population of California, irrigation in central and southern California, flood control, and hydroelectricity. The dam is over 700 feet high and is almost 7,000 feet long at the top. Failure of Oroville Dam could inundate a portion of the City of Orland.

Black Butte Dam was constructed on Stony Creek by the U.S. Army Corps of Engineers and is operated by the U.S. Bureau of Reclamation. Black Butte Dam is an earth-filled structure located approximately 24 miles west of the Sacramento River. The dam is located below the Stony Creek, Stony Gorge, and East Park reservoirs. The combined storage capacities of these reservoirs are estimated to be 160,000 acre-feet. Should the dams upstream of Black Butte fail, Black Butte Dam could not withstand the volume of water and would also fail and inundate the City of Orland.

The California Office of Emergency Services (CA OES) has developed and approved dam failure inundation maps for areas below California's dams. These maps are intended to be used by state and local officials for the development and approval of dam failure emergency procedures. The maps are also used to provide information needed to make natural hazard disclosure statements. Files are maintained on the CA OES home page. The inundation maps maintained on file by CA OES are prepared for emergency planning purposes only and may not be drawn at a sufficient scale or level of detail to identify specific parcels of land.

The legislative intent of the original CA OES seismic safety of dams legislation (Senate Bill 896, of 1972) was to establish emergency procedures for the evacuation and control of populated areas below dams which could be used to save lives and reduce injury in the event of a dam failure. As a result of this legislation, CA OES established the dam failure inundation mapping and emergency procedure program.

Dam owners submit inundation maps to CA OES for review and approval in accordance with guidance issued by CA OES. Copies of the approved inundation maps are sent to the city and county emergency services coordinators of affected local jurisdictions. Inundation maps represent a reasonable estimate of where water would flow if a dam failed completely and suddenly with a full reservoir. Based upon approved inundation maps, cities and counties with territory in the affected areas are required to adopt emergency procedures for the evacuation and control of populated areas below the dams.

The entire Planning Area is subject to flooding as a result of a Black Butte Dam failure and floodwaters would reach the Planning Area in approximately two hours.

Figure 4.7-4

100 Year Floodplain

Planning Area

City Boundary

100-Year Floodplain

As delineated on FEMA FIRM Maps Nos. 165 and 170.

0 0.25 0.5 Miles

N

Hambright Creek

Stony Creek

Stony Creek Irrigation Canal

Stony Creek

Butte Main Canal Lateral No. 44

Tehama Colusa Canal

Tehama Colusa Canal

UPRR

INTERSTATE 5

HWY 99W

COUNTY ROAD 12

COUNTY ROAD 15

CO RD 17

ROAD 18

ROAD 19

ROAD 20

ROAD 21

ROAD 22

ROAD 23

ROAD 24

ROAD 11

ROAD 12

ROAD 13

ROAD 14

ROAD 16

NEWVILLE RD

WYO AVE

ROAD PP

ROAD QQ

TROPETROS LN

DATE ST

ALMOND WAY

RENATI WAY

TANNER WY

W MONTEREY ST

SUISUN ST

TRINITY ST

TUVE CIR

GENSON DR

SHASTA ST

HOFF WAY

TEHAMA ST

SWIFT ST

WALKER ST

COUNTY ROAD HH

WATTS AVE

CORTINA DR

CENTRAL ST

CHAPMAN ST

SOUTH STREET

E SOUTH ST

GRACELYN ST

CAROLYN CT

PINE ST

FAIRVIEW ST

KELLY DR

BONNIE LN

BRYANT ST

E SHASTA ST

E TEHAMA ST

E SWIFT ST

E WALKER STREET

E COLUSA ST

E MILL ST

ROBBINS ST

E YOLO ST

PAIGEWOOD DR

OAKWOOD DR

ELLIS ST

MORGAN ST

WOODWARD AVENUE

EAST AVE

STATE HIGHWAY 32

SUNSET AVE

SUNSET

CO RD 200

BUTTE COLLEGE

OUWUA HEADQUARTERS

MILL STREET GRAMMER SCHOOL

CHAS. K. PRICE GRAMMER SCHOOL

FAIRVIEW GRAMMER SCHOOL

GLENN COUNTY FAIRGROUNDS

CITY CORPERATION YARD

LELY AQUATIC PARK

HAIGH FIELD

55 DBA CNEL Noise Contour

Airport Land Use Planning Boundary

4.7.2 REGULATORY FRAMEWORK

FEDERAL

Clean Water Act

The Clean Water Act, first enacted in 1972, is the key legislation regulating surface water quality in the United States. The goal of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The Clean Water Act does not deal directly with groundwater or with water quantity issues. While the U.S. Environmental Protection Agency (USEPA) establishes water quality regulations under the Clean Water Act, it delegates the actual implementation of many of these regulations to the states. In California, the State Water Resources Control Board (SWRCB) and the local Regional Water Quality Control Board (RWQCB) carry out Clean Water Act regulations. Orland is within the jurisdiction of the Central Valley RWQCB.

SWRCB has issued a statewide General Construction Permit (Water Quality Order No. 99-08-DWQ) for construction activities within the state. The RWQCBs implement and enforce this construction permit, which applies to construction activities that disturb one acre or more of land. A condition of this permit is the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) that identifies best management practices (BMPs) to minimize pollutants from discharging from the construction site. SWRCB currently is in the process of reissuing the statewide General Construction Permit with some modifications. The modifications would achieve three primary goals: create a "risk-based" permit that appropriately allocates responsibilities and requirements to projects based on their relative risk to water quality, obtain better measures of performance from projects, and establish a standard for new and redevelopment projects that address impacts related to hydromodification (alteration of stream channel due to changes in sediment load).

Section 303(d)

Section 303(d) of the Clean Water Act requires that states make a list of waters that are not attaining water quality standards after implementation of technology-based limits. For waters on this list, the states must develop total maximum daily loads (TMDLs) that account for all sources of the pollutants that placed the water on the list. These include "nonpoint" sources, which are sources of pollutants not connected to a specific discharger, such as an industrial plant or a wastewater treatment plant. TMDLs are established at the level necessary to implement the applicable water quality standards. The Clean Water Act does not expressly require the implementation of TMDLs. However, in California, SWRCB has interpreted state law to require that implementation be addressed when TMDLs become part of Basin Plans.

Federal Emergency Management Agency

The City of Orland is a not a participant in the National Flood Insurance Program (NFIP), a federal program administered by FEMA. Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted as a desired level of protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood. The Intermediate Regional Flood is defined as a flood that has an average frequency of occurrence of once every 100 years, although such a flood may occur in any given year. The Department of Water Resources

occasionally audits communities to ensure the proper implementation of FEMA floodplain management regulations.

STATE

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act, passed in 1969, is the primary state law regarding water quality. It established the SWRCB and divided the state into nine regions, each overseen by a RWQCB. SWRCB is the primary state agency responsible for protecting the quality of the state's surface water and groundwater supplies, but much of its daily implementation authority is delegated to the nine RWQCBs.

The Porter-Cologne Act assigns responsibility for implementing provisions of the federal Clean Water Act to the SWRCB and RWQCBs. In addition, the Porter-Cologne Act provides for the development and periodic review of water quality control plans (Basin Plans). The Basin Plans designate beneficial uses of California's major rivers and groundwater basins, and they establish narrative and numerical water quality objectives for those waters. The applicable Basin Plan for the proposed Planning Area is the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan), most recently updated in 1998.

State Water Resources Control Board

On September 2, 2009, the SWRCB adopted a new Construction General Permit (CGP) (Order No. 2009-0009DWQ) that will supersede the existing CGP on July 1, 2010. A summary of the differences between the existing CGP and the new CGP follows (SWRCB, 2009):

> ***Rainfall Erosivity Waiver:*** *This General Permit includes the option allowing a small construction site (>1 and <5 acres) to self-certify if the rainfall erosivity value (R value) for their site's given location and time frame compute to be less than or equal to 5.*
>
> ***Technology-Based Numeric Action Levels:*** *This General Permit includes NALs [numeric action levels] for pH and turbidity.*
>
> ***Technology-Based Numeric Effluent Limitations:*** *This General Permit contains daily average NELs [numeric effluent limitations] for pH during any construction phase where there is a high risk of pH discharge and daily average NELs turbidity for all discharges in Risk Level 3. The daily average NEL for turbidity is set at 500 NTU [turbidity] to represent the minimum technology that sites need to employ (to meet the traditional Best Available Technology Economically Achievable (BAT)/Best Conventional Pollutant Control Technology (BCT) standard) and the traditional, numeric receiving water limitations for turbidity.*
>
> ***Risk-Based Permitting Approach:*** *This General Permit establishes three levels of risk possible for a construction site. Risk is calculated in two parts: (1) Project Sediment Risk, and (2) Receiving Water Risk.*
>
> ***Minimum Requirements Specified:*** *This General Permit imposes more minimum BMPs and requirements that were previously only required as elements of the SWPPP or were suggested by guidance.*

Project Site Soil Characteristics Monitoring and Reporting: *This General Permit provides the option for dischargers to monitor and report the soil characteristics at their project location. The primary purpose of this requirement is to provide better risk determination and eventually better program evaluation.*

Effluent Monitoring and Reporting: *This General Permit requires effluent monitoring and reporting for pH and turbidity in storm water discharges. The purpose of this monitoring is to determine compliance with the NELs and evaluate whether NALs included in this General Permit are exceeded.*

Receiving Water Monitoring and Reporting: *This General Permit requires some Risk Level 3 dischargers to monitor receiving waters and conduct bioassessments.*

Post-Construction Storm Water Performance Standards: *This General Permit specifies runoff reduction requirements for all sites not covered by a Phase I or Phase II MS4 NPDES permit, to avoid, minimize and/or mitigate post-construction storm water runoff impacts.*

Rain Event Action Plan: *This General Permit requires certain sites to develop and implement a Rain Event Action Plan (REAP) that must be designed to protect all exposed portions of the site within 48 hours prior to any likely precipitation event.*

Annual Reporting: *This General Permit requires all projects that are enrolled for more than one continuous three-month period to submit information and annually certify that their site is in compliance with these requirements. The primary purpose of this requirement is to provide information needed for overall program evaluation and pubic information.*

Certification/Training Requirements for Key Project Personnel: *This General Permit requires that key personnel (e.g., SWPPP preparers, inspectors, etc.) have specific training or certifications to ensure their level of knowledge and skills are adequate to ensure their ability to design and evaluate project specifications that will comply with General Permit requirements.*

Linear Underground/Overhead Projects: *This General Permit includes requirements for all Linear Underground/Overhead Projects (LUPs).*

Certain actions during construction may also need to conform to a General Permit (Water Quality Order No. 5-00-175) that requires that a permit be acquired for dewatering and other low threat discharges to surface waters, provided that they do not contain significant quantities of pollutants and either (1) are four months or less in duration, or (2) the average dry weather discharge does not exceed 0.25 million gallons per day (mgd). Examples of activities that may require the acquisition of such a permit include well development water, construction dewatering, pump/well testing, pipeline/tank pressure testing, pipeline/tank flushing or dewatering, condensate discharges, water supply system discharges, and other miscellaneous dewatering/low threat discharges. However, the actions applicable to site development may already be covered under the CGP, and therefore a separate permit may not be required.

Senate Bill (SB) 5

SB 5 was signed into law in October 2007 and requires the state to develop a plan for flood protection by 2012. Once this state plan takes effect, the bill will prohibit counties and cities

located in the Sacramento-San Joaquin Valley watershed from entering into development agreements or approving permits, entitlements, or subdivision maps in a flood zone unless there is an appropriate level of flood protection or the local flood management agency has determined that adequate progress toward that flood protection has been made. Also once the plan takes effect, the bill will require 200-year flood protection for proposed projects in urban and urbanizing areas (defined as 10,000 residents or more). The bill also authorizes cities and counties to develop and adopt local plans of flood protection that include a strategy to meet the 200-year level of flood protection, an emergency response plan, and a long-term funding strategy for improvement, maintenance, and operation of flood protection facilities.

In order to implement this bill, the Department of Water Resources was required to provide cities and counties within the Central Valley watershed with preliminary 100- and 200-year floodplain maps by July 1, 2008. DWR has prepared only preliminary 100- and 200-year flood maps for 32 counties and 91 cities within the watershed. These maps are based on the best information currently available. DWR has initiated several projects that will provide updated information about flood hazards in the watershed over the next two to four years (DWR, 2008).

LOCAL

Orland General Plan

The City of Orland General Plan is used to guide future development in the City. State law requires that all local governments prepare a General Plan for future development in their jurisdictions. The City's current General Plan was adopted in 2003. The City of Orland General Plan of 2003 includes a number of policies and associated programs that relate to the management and protection of water quality. Key objectives and policies that relate to hydrology and water quality include Policy 4.5.A and Programs 4.5.A.1 through 4.5.A.3 which ensure that new development projects comply with state and federal regulations and standards governing water quality.

4.7.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, hydrology and water quality impacts are considered to be significant if the following could result from the implementation of the proposed General Plan:

1) Violation of any water quality or waste discharge requirements.

2) Substantial depletion of groundwater supplies or substantial interference with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

3) Substantial alteration of the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

4) Substantial alteration of the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

5) Creation of, or contribution to, runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

6) Otherwise substantial degradation of water quality.

7) Placement of housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

8) Placement within a 100-year flood hazard area of structures which would impede or redirect flood flows.

9) Exposure of 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.

10) Inundation by seiche, tsunami, or mudflow.

METHODOLOGY

The hydrology and water quality analysis is based on a review of published information, reports, and plans regarding regional hydrology, climate, geology, water quality, and regulations. Relevant documents include the 2006 California Water Plan and the Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region and the Sacramento River Basin and the San Joaquin River Basin.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Surface Water Quality Impacts

Impact 4.7.1 Implementation of the proposed General Plan could result in an alteration of existing drainage, in the discharge of polluted runoff, discharge that could cause harm to the biological integrity of waterways, adversely impact water quality standards, or otherwise substantially degrade surface water quality. This is considered a **less than significant** impact.

Implementation of the proposed General Plan would potentially result in new development over existing conditions. Construction, residential, commercial, recreation, and landscaping practices could potentially impact water quality and/or exceed stormwater drainage systems. The proposed General Plan includes changes in land use designations and acreages for certain areas in the City. **Table 3.0-1** of Section 3.0, Project Description, lists the changes to General Plan land use designations and the resulting acreage conversion between the existing and the proposed General Plans. As shown in this table, proposed land use changes increase the acreage available for virtually all land uses including residential, commercial, and industrial uses, thereby allowing for an increased level of potential land disturbance (i.e., grading and trenching) and potential hazardous materials use and runoff, which may impact water quality. For instance, approximately 1,110 additional acres of residential uses and 330 additional acres of industrial uses would be available under the proposed General Plan.

Direct and indirect surface water quality impacts could occur from the following general land use activities:

- **Construction:** Grading and vegetation removal activities would result in the exposure of raw soil materials to the natural elements (wind, rain, etc.). During precipitation events, soil erosion can impact the surface runoff by increasing the amount of silt and debris carried by runoff. In addition, refueling and parking of construction equipment and other vehicles on-site during construction may result in spills of oil, grease, or related pollutants that may discharge into City drainages. Improper handling, storage, or disposal of fuels and hazardous materials or improper cleaning of machinery close to area waterways could cause water quality degradation.

- **Residential:** Residential activities often involve the conventional maintenance of yards, i.e., using fertilizers, herbicides, pesticides, fungicides, and other chemicals in and around the home that can enter stormwater runoff. In addition, motor vehicle operation and maintenance introduces oil, antifreeze, and other petroleum-based products, heavy metals such as copper from brake linings, and surfactants from cleaners and waxes into residential runoff. Pet and animal waste from yards, trails, and stream corridors can enter stormwater runoff or flow directly into stream channels.

- **Commercial:** Commercial businesses often provide conventional maintenance of landscaped areas and use fertilizers, herbicides, pesticides, and other chemicals, which can enter stormwater runoff. Motor vehicle operation and maintenance also contributes oil, antifreeze, and other petroleum-based products, heavy metals such as copper from brake linings, and surfactants into stormwater runoff. Auto mechanic shops, farm and hardware supply stores, salvage yards, dry cleaners, graphic and photographic processing shops, recycling businesses, and mining and aggregate operations, as well as other commercial and industrial businesses, can potentially contribute concentrated quantities of hazardous substances directly or indirectly into stormwater runoff, as well as into groundwater, if not properly maintained and monitored.

- **Recreation:** Parks and golf courses often practice conventional landscaping methods and maintain recreation areas using fertilizers, herbicides, pesticides, and algaecides, which can enter stormwater runoff or flow directly into stream channels.

Construction Surface Water Quality Impacts

Construction associated with subsequent development under the proposed General Plan would consist of grading and vegetation removal activities that would increase soil erosion rates on the areas proposed for development. These activities would result in the exposure of raw soil materials to the natural elements (wind, rain, etc.). In rainy periods, grading operations may impact the surface runoff by increasing the amount of silt and debris carried by runoff. Areas with uncontrolled concentrated flow would experience loss of material within the graded areas, and this could potentially impact the downstream water quality of both Hambright and Stony Creeks, and eventually the Sacramento River.

Refueling and parking of construction equipment and other vehicles on-site during construction may result in spills of oil, grease, or related pollutants that may discharge into Planning Area drainages. Improper handling, storage, or disposal of fuels and materials or improper cleaning of machinery close to area waterways could cause water quality degradation.

The State Water Resources Control Board is responsible for implementing elements of the Clean Water Act and has issued a statewide General Permit (Water Quality Order 99-08-DWQ) for construction activities within the state. The State General Construction Activity Storm Water Permit is implemented and enforced by Regional Water Quality Control Boards and applies to construction activities that disturb one acre or more. This permit also requires the preparation and implementation of a Storm Water Pollution Prevention Plan that identifies BMPs to minimize pollutants from discharging from construction sites to the maximum extent practicable.

The BMPs that must be implemented can be grouped into two major categories: (1) erosion and sediment control BMPs and (2) non-stormwater management and materials management BMPs. Erosion and sediment control BMPs fall into four main subcategories:

- Erosion controls
- Sediment controls
- Wind erosion controls
- Tracking controls

During construction of projects within the City, the dischargers must eliminate non-stormwater discharges to stormwater systems, develop and implement a Storm Water Pollution Prevention Plan, and perform monitoring of discharges to stormwater systems. Possible best management practices for construction activities identified in the California Stormwater Quality Association Construction Handbook, include, but are not limited to, the following:

- Good housekeeping activities, such as covering stored materials and elevating them off the ground in a central location.

- Securely locating portable toilets away from the storm drainage system and performing routine maintenance.

- Providing a central location for concrete washout and performing routine maintenance.

- Providing several dumpsters and trashcans throughout the construction site for litter/floatable management.

- Covering and/or containing stockpiled materials and overall good housekeeping on the site.

- The preservation of existing vegetation.

- Perimeter protection along property lines.

Operational Surface Water Quality Impacts

Runoff from urban development typically contains oils, grease, fuel, antifreeze, and byproducts of combustion (such as lead, cadmium, nickel, and other metals), as well as nutrients from fertilizers and animal waste, sediment, pesticides, herbicides, and other pollutants. Also, sizable quantities of animal waste from pets (e.g., dogs, cats, and horses) contribute bacterial pollutants into surface and source waters. Precipitation during the early portion of the wet season displaces these pollutants into the stormwater runoff, resulting in high pollutant concentrations in the initial wet weather runoff. This initial runoff, containing peak pollutant levels, is referred to as the "first flush" of storm events. It is estimated that during the rainy season, the first flush of heavy metals and hydrocarbons would occur during the first 5 inches of seasonal rainfall.

The amount and type of runoff generated by development within the City would be greater than that under existing conditions due to increases in impervious surfaces. There would be a corresponding increase in urban runoff pollutants and first flush roadway contaminants such as heavy metals, oil, and grease, as well as an increase in nutrients (i.e., nitrates and phosphates), and pesticides and herbicides from landscaped areas. These constituents would result in water quality impacts to on- and off-site drainage flows and to downstream area waterways, including Hambright and Stony Creeks as well as the Sacramento River.

As described in further detail in Section 4.4, Biological Resources, surface waters provide for a variety of functions for plants and animals, including a water source, habitat, foraging, cover, and migration and movement corridors. Adverse impacts to surface waters can cause detrimental harm to the organisms that rely upon these waters and to biological integrity as a whole.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, & Public Facilities: Policy 5.6.A, Program 5.6.A.1, Program 5.6.A.2, Program 5.6.A.3, Policy 5.6.B, Program 5.6.B.3, Policy 5.6.D, Program 5.9.B.2, Program 5.9.B.3

Policy 5.6.A and associated Programs 5.6.A.1 and 5.6.A.2 ensure that new development projects comply with state and federal regulations and standards in order to maintain and improve water quality. All new and redevelopment construction projects are required to submit grading plans which are submitted to the Central Valley Regional Water Quality Control Board for approval under the National Pollutant Discharge Elimination System (NPDES) construction activities stormwater permit. New development in excess of one acre is subject to an NPDES permit. The purpose of the permit is to protect water quality from development areas that would discharge into a surface water body. During construction of the project, the discharger must eliminate non-stormwater discharges to stormwater systems, develop and implement a Storm Water Pollution Prevention Plan, and perform monitoring of discharges to stormwater systems. The Construction Stormwater General Permit adopted by the State Water Resources Control Board requires the project applicant and/or contractor to develop and implement a SWPPP. This plan must specify best management practices that would prevent all construction pollutants from contacting stormwater, with the intent of keeping all products of erosion from moving off-site into receiving waters. The permit also requires elimination or reduction of non-stormwater discharges to receiving waters and inspection of all best management practices. The State has published a set of best management practices for both pre- and post-construction periods. Program 5.6.A.3 requires the City to ensure that new development has minimal impacts on natural drainage channels and flow capacity. Policy 5.6.B and associated Program 5.6.B.3 help to reduce the potential for sediment and other pollutants to contaminate surface water resources in the Planning Area by adopting requirements for grease and sediment traps for roads and parking lots which improve water quality of urban runoff. Policy 5.6.D encourages the use of site design techniques for non-residential uses that provide for the discharge of on-site stormwater into landscaped basins or swales prior to discharge to the City's storm drainage system. Program 5.9.B.2 encourages the use of landscaped bioswales to filter oil and other pollutants from stormwater drainage, and Program 5.9.B.3 states that the City shall consider the use of filtered storm drainage inlets to screen pollutants from drainage waters.

Implementation of the above proposed General Plan policies and programs as well as compliance with NPDES permit requirements would ensure that both construction-related and operational impacts to surface water resources in the General Plan Planning Area would be **less than significant**.

Mitigation Measures

None required.

Groundwater Supply Impacts

Impact 4.7.2 Implementation of the proposed General Plan could result in a reduction of groundwater recharge resulting from future land uses. This is considered a **less than significant** impact.

As noted above, the City of Orland receives its water from Public Water System Number 1110001. The aquifer system underlying Orland supplies the municipal and agricultural water demands of the City. The groundwater system is largely sustained by recharge at Stony Creek located at the northern boundary of the Planning Area. An increase in the City population by 4,933 residents over 2008 conditions (see Section 4.0 of this EIR) coupled with the resultant increase in development as a result of the proposed General Plan may result in an increased conversion of natural ground surfaces to impervious surfaces (e.g., pavement, rooftops) and could result in an interference with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level underlying the Planning Area.

Groundwater level data of the Colusa Subbasin, which supplies the City, shows an average seasonal fluctuation of approximately 5 feet for normal and dry years. Despite seasonal variations, long-term groundwater levels of the Colusa Subbasin have remained relatively constant. This condition is likely the result of a combination of recharge from the Sacramento River and its tributaries (i.e., Stony Creek) and surrounding mountains, as well as deep percolation of applied irrigation water from agricultural practices and rainfall throughout the Colusa Subbasin. A review of hydrographs for long-term comparison of spring-to-spring groundwater levels indicated a slight decline in groundwater levels associated with the 1976-77 and 1987-94 droughts, followed by recovery to pre-drought conditions of the early 1970s and 1980s. Some wells increased in levels beyond the pre-drought conditions of the 1970s during the wet season of the early 1980s. Overall, there does not appear to be any increasing or decreasing trends in groundwater levels (DWR, 2006). The estimated storage capacity to a depth of 200 feet is approximately 13,025,887 acre-feet (DWR, 2006).

Estimates of groundwater extraction for the Colusa Subbasin are based on surveys conducted by the California Department of Water Resources during 1993, 1994, and 1999. Surveys included land use and sources of water. Estimates of groundwater extraction for agricultural, municipal and industrial, and environmental wetland uses are 310,000; 14,000; and 22,000 acre-feet, respectively. Deep percolation from applied water is estimated to be 64,000 acre-feet. The Department of Water Resources has not identified the Colusa Subbasin as overdrafted in its DWR Bulletin 118. Also, there has been no indication of any existing or anticipated overdraft condition in studies prepared by other entities (DWR, 2006).

As shown in **Figure 3.0-3** of the Project Description, much of lands surrounding Stony Creek located in the northern portion of the Orland Planning Area are designated as Open Space/Resource Conservation. The Open Space/Resource Conservation land use category is to assure Orland residents a healthy amount of public open space, to preserve and enhance the natural environment that contributes to the quality of life in and around Orland, and to make certain that growth does not adversely affect natural resources.

As the groundwater system underlying the Orland area is largely sustained by recharge in Stony Creek located at the northern boundary of the Planning Area, this designation will maintain the

potential to conserve natural ground surfaces in this region and encourage groundwater recharge within the Planning Area.

Refer to Section 4.12, Public Services for further discussion on the City's water supply.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, & Public Facilities: Policy 5.6.B, Program 5.6.B.1, Policy 5.6.E, Policy 5.7.A, Program 5.7.A.1, Program 5.7.A.2, Policy 5.7.B, Program 5.7.B.1

Program 5.6.B.1 states that the City shall maintain the natural conditions of the waterways and floodplains of the Planning Area in order to ensure adequate groundwater recharge and groundwater quality. Program 5.7.A.1 requires wells located on land annexed to the City and served by City water service to be properly abandoned or all possibility of cross-connection with the City water system eliminated in accordance with Glenn County Health Department guidelines. Program 5.7.A.2 requires that the City ensure that all City wells are operated and maintained to meet California Department of Health Services standards for public drinking water supplies. Policy 5.6.E, Policy 5.7.B, and Program 5.7.B.1 all encourage water conservation measures, which will ensure that the compression of regional aquifers does not occur.

As mentioned above, the estimated storage capacity to a depth of 200 feet is approximately 13,025,887 acre-feet and estimates of groundwater extraction for agricultural, municipal and industrial, and environmental wetland uses are 310,000; 14,000; and 22,000 acre-feet, respectively (DWR, 2006). The Department of Water Resources has not identified the Colusa Subbasin as overdrafted in its DWR Bulletin 118. Also, there has been no indication of any existing or anticipated overdraft condition in studies prepared by other entities (DWR, 2006). Implementation of the above proposed General Plan policies and programs ensure that impacts to groundwater supply resources in the City of Orland would be considered **less than significant**.

Mitigation Measures

None required.

Groundwater Quality Impacts

Impact 4.7.3 Implementation of the proposed General Plan could result in the degradation of groundwater quality resulting from future land uses. This is considered a **less than significant** impact.

Development of various projects would urbanize the City, thus generating runoff that would contain oils, grease, fuel, antifreeze, byproducts of combustion (such as lead, cadmium, nickel, and other metals), other household pollutants, nutrients (i.e., fertilizers), and other chemicals from landscaped areas. Gas stations and industrial uses are of primary concern.

Water quality in Orland is generally good. Because the main source of domestic water in Orland is groundwater, maintenance of groundwater quality is of primary importance to residents.

Over the life of the proposed General Plan, it is expected that a significant acreage of land will be converted from natural to urban use. Some of these lands have already been significantly modified from the natural environment due to farming, grading, or previous urban use.

Nevertheless, implementation of the proposed General Plan could result in direct impacts to groundwater resources.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, & Public Facilities: Policy 5.6.A, Policy 5.6.B, Program 5.6.B.1, Program 5.6.B.2, Policy 5.6.C, Policy 5.6.E, Policy 5.7.A, Program 5.7.A.1, Program 5.7.A.2, Policy 5.7.B, Program 5.7.B.1

Policy 5.6.A and Policy 5.6.B ensure that new development projects comply with state and federal regulations and standards in order to reduce the potential for pollutants to contaminate groundwater resources. Program 5.6.B.2 protects groundwater quality by requiring most new development to connect to the City's wastewater collection system as opposed to using on-site wastewater treatment systems which are a source of nitrates, a groundwater pollutant. Policy 5.6.C instigates the exploration of the use of pervious concrete to allow the continued filtration of groundwater into the soil. Policy 5.7.A requires the City to implement measures to ensure groundwater resources in the Orland area are protected from contamination.

Implementation of the above proposed General Plan policies and programs ensure that impacts to groundwater resources in the City of Orland would be considered **less than significant**.

Mitigation Measures

None required.

Drainage and Flooding Impacts

Impact 4.7.4 Implementation of the proposed General Plan could result in a substantial alteration of an existing drainage pattern, including through the alteration of the course of a stream or river. This alteration may substantially increase the rate of amount of surface runoff in a manner that would result in flooding on- or off-site or could result in the creation or contribution of runoff water which would exceed the capacity of existing or planned stormwater drainage systems. Implementation of the proposed General Plan may impede or redirect flood flows or expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam or result in inundation by seiche, tsunami, or mudflow. This impact is considered a **less than significant** impact.

When land is in a natural or undeveloped condition, soils, mulch, and plant roots absorb rainwater. This absorption process is called infiltration or percolation. Much of the rainwater that falls on natural or undeveloped land slowly infiltrates into the soil and is stored either temporarily or permanently on the surface or in underground layers of soil. When the soil becomes completely saturated with water or the rate of rainfall exceeds the infiltration capacity of the soil, the rainwater begins to flow on the surface of land to low-lying areas, ditches, channels, streams, and rivers. Rainwater that flows off of a site is defined as stormwater runoff.

The infiltration and runoff process is altered when a site is developed with urban uses. Urban development often includes the addition of impervious surfaces, including roads, parking lots, driveways, and conventional roof tops, such that precipitation does not have the opportunity to saturate the ground and enter the groundwater table. As a result, precipitation runs off as

stormwater via sidewalks, roadways, and gutters. Surface waters provide a physical conveyance of surface water flows and channels for the handling of large stormwater events. Large storms can produce extreme flows that cause bank cutting and sedimentation of ephemeral drainages, streams, lakes, and reservoirs. In addition, flooding can cause problems to area roadways and homes.

Flooding can be a major problem and is most predominant throughout the Central Valley region along the Sacramento River corridor. **Figure 4.7-4** depicts areas in the Planning Area within a 100-year floodplain, as delineated on Flood Insurance Rate Maps. All of the mapped floodplains in the Planning Area are located along Hambright and Stony Creeks. These two creeks traverse areas in the vicinity of locations where future development is likely to occur. Without proper controls, development could alter the course of these creeks and could impact stream bank soils, resulting in substantial erosion and increasing the potential for flooding.

Subsequent development under the proposed General Plan would be located outside of the designated 100-year floodplain for the most part. However, implementation of the Land Use Diagram would result in the substantial development within the Planning Area, which would increase impervious surfaces and alter drainage conditions and rates.

As previously described, SB 5 was signed into law in October 2007 and requires the state to develop a plan for flood protection by 2012. Once the plan takes effect, the bill will require 200-year flood protection for proposed projects in urban and urbanizing areas (defined as 10,000 residents or more). The bill also authorizes cities and counties to develop and adopt local plans of flood protection that include a strategy to meet the 200-year level of flood protection, an emergency response plan, and a long-term funding strategy for improvement, maintenance, and operation of flood protection facilities.

In order to implement this bill, the Department of Water Resources was required to provide cities and counties within the Central Valley watershed with preliminary 100- and 200-year floodplain maps by July 1, 2008. DWR has prepared only preliminary 100- and 200-year flood maps for 32 counties and 91 cities within the watershed. According to the preliminary 100- and 200-year floodplain map for Glenn County, no areas within the Planning Area have been designated as being within the 200-year floodplain. The DWR has initiated several projects that will provide updated information about flood hazards in the watershed over the next two to four years (DWR, 2008).

Dam failure, the collapse or failure of an impoundment that causes significant downstream flooding, is a potential hazard for Orland. Flooding of the area below the dam may occur as a result of structural failure of the dam or overtopping. The collapse and structural failure of a dam may be caused by a severe storm, earthquakes, or internal erosion of piping caused by embankment and foundation leakage. Larger dams whose waters could inundate significant portions of the City include the Shasta Dam (in Shasta County) and Black Butte Dam on Stony Creek. Black Butte Dam is subject to flooding the City of Orland Planning Area in approximately two hours as a result of a dam failure. Prior to the terrorist attacks of September 11, 2001, public information was available that provided structural ratings for dams throughout the country. Since that time, this information has been classified and is not readily available. However, prior to the classification of this information, Black Butte Dam was rated to be in good condition. Therefore, an event such as the failure of Black Butte Dam has an extremely low probability of occurring and is not considered to be a reasonably foreseeable event.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Safety Element: Policy 4.2.A, Program 4.2.A.1, Program 4.2.A.2, Policy 4.2.B, Policy 4.2.C

Open Space, Conservation, and Public Facilities Element: Policy 5.9.A, Program 5.9.A.1, Program 5.9.A.3, Policy 5.9.D, Program 5.9.D.1, Program 5.9.D.2

Policy 4.2.A and Program 4.2.A.1 work to develop and implement flood control strategies for the City and new construction. Program 4.2.A.2 requires that new development projects be designed to avoid increases in peak stormwater runoff levels. Policy 4.2.B states that new development shall not be approved in areas which are subject to flooding without prior review and approval of plans for improvements which provide a minimum flood protection level equal to the 100-year occurrence storm event. Policy 4.2.C states that development of habitable or commercial structures within the 100-year floodplain must be completely mitigated through proper design.

Policy 5.9.A would require that adequate stormwater collection facilities exist as part of new development such that there is no net increase in stormwater runoff compared to predevelopment conditions. Program 5.9.A.1 provides for on- and off-site stormwater facilities as part of new development or redevelopment as a way to prevent flooding in areas with inadequate existing stormwater facilities. Program 5.9.A.3 ensures that the City will complete its Storm Drainage Master Plan that identifies necessary improvements and their scheduling. Policy 5.9.B seeks to minimize the potential for flood damage to buildings and structures from stormwater runoff by exploring the use of pervious concrete and pavement to assist in the return of water to the regional aquifer and to assist in the management of storm drainage (associated Program 5.9.B.1). Policy 5.9.D aims to increase community awareness of flooding hazards and to coordinate flood control activities with interested agencies. Program 5.9.D.1 states that the City shall work with the community and other agencies to help identify flooding hazards and mitigation options and seeks to work with FEMA to periodically update the City's FEMA flood maps. Program 5.9.D.2 promotes coordination between the City and Glenn County to establish flood hazard mitigation and compliance with the Disaster Management Act of 2000.

Implementation of the above proposed General Plan policies and programs would ensure that drainage and flood related impacts would be **less than significant**.

Mitigation Measures

None required.

4.7.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting includes the City of Orland General Plan Planning Area and the Sacramento River Hydrologic Region. The Hydrologic Region covers approximately 17.4 million acres (27,200 square miles) (DWR, 2006). The region includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties. Geographically, the region extends south from the Modoc Plateau and Cascade Range at the Oregon border to the Sacramento-San Joaquin Delta. The Sacramento River is the longest river system in the State of California with the Pit, Feather, Yuba, Bear, and American rivers as major tributaries.

The Sacramento River Hydrologic Region is the main water supply for much of California's urban and agricultural areas. Annual runoff in the Sacramento River Hydrologic Region averages about 22.4 million acre-feet, which is nearly one-third of the state's total natural runoff. Major water supplies in the region are provided through surface storage reservoirs. The Shasta Dam Reservoir is one of the two largest surface water projects in the region. In all, there are more than 40 major surface water reservoirs in the region.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Water Quality Impacts

Impact 4.7.5 Implementation of the proposed General Plan and potential development of the City would include substantial grading, site preparation, and an increase in urbanized development. Increased development would contribute to cumulative water quality impacts and is considered **less than cumulatively considerable**.

As described under Impact 4.7.1, implementation of the proposed General Plan would allow for the development of urban uses in an area which is currently vacant land or agricultural land. This would add to other potential development activities within Glenn County and adjacent areas, depending on the timing and rate of development. Development of this acreage will result in cumulative water quality impacts, which include impacts on surface water and groundwater quality and potential impacts to water supply.

All new and redevelopment construction projects are required to submit grading plans, and all grading plans would need to be reviewed and approved by the City. These plans would also be submitted to the Central Valley Regional Water Quality Control Board for approval under the National Pollutant Discharge Elimination System construction activities stormwater permit. New development in excess of one acre is subject to an NPDES permit. The purpose of the permit is to protect water quality from development areas that would discharge into a surface water body. During construction of the project, the discharger must eliminate non-stormwater discharges to stormwater systems, develop and implement a Storm Water Pollution Prevention Plan, and perform monitoring of discharges to stormwater systems. The Construction Stormwater General Permit adopted by the State Water Resources Control Board requires the project applicant and/or contractor to develop and implement a SWPPP. This plan must specify best management practices that would prevent all construction pollutants from contacting stormwater, with the intent of keeping all products of erosion from moving off-site into receiving waters. The permit also requires elimination or reduction of non-stormwater discharges to receiving waters and inspection of all best management practices. The State has published a set of best management practices for both pre- and post-construction periods.

Mitigation Measures

Implementation of the proposed General Plan policies and programs described under Impacts 4.7.1, 4.7.2, 4.7.3, and 4.7.4 would ensure the attainment of water quality standards and protection of beneficial uses consistent with applicable water quality requirements. Thus, the proposed General Plan's contribution to cumulative water quality impacts would be reduced to **less than cumulatively considerable**.

Cumulative Flood Hazards

Impact 4.7.6 Implementation of the proposed General Plan would increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions along the Sacramento River and other local waterways. However, the proposed General Plan contains adequate proposed General Plan policies and programs that address drainage and flooding issues. This is considered a **less than cumulatively considerable** impact.

As described under Impact 4.7.4, urban development under the proposed General Plan would increase impervious surfaces in the Planning Area that would contribute (in combination with cumulative development in the watershed) to increases in flood conditions for area waterways. The project would also increase the regional population that could be exposed to flooding as a result of the failure of Black Butte Dam. However, such an event has an extremely low probability of occurring and is not considered to be a reasonably foreseeable event.

Mitigation Measures

Implementation of the proposed General Plan policies and programs described under Impact 4.7.4 would ensure that drainage and flood-related impacts would be adequately mitigated. Thus, the proposed General Plan's contribution to cumulative drainage and flood-related impacts would be reduced to **less than cumulatively considerable**.

REFERENCES

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4.8 Land Use

This section describes the existing land uses in the proposed City of Orland Planning Area, characterizes surrounding land uses, and discusses adopted plans and policies pertinent to the area. Key issues addressed in this section include conflicts with land use plans/policies and incompatibilities between land uses. Refer to Section 4.2, Agricultural Resources, for discussions regarding agricultural land use.

4.8.1 EXISTING SETTING

The proposed Planning Area is located entirely within Glenn County, which is located in the west central portion of the Sacramento Valley in northern California (see **Figure 3.0-1** in Section 3.0, Project Description). Tehama County is to the north, Colusa County is to the south, Mendocino and Lake counties are to the west, and Butte County is to the east. Glenn County encompasses approximately 1,317 square miles of land.

The proposed Planning Area includes the City's corporate boundary and additional lands encompassing both the Primary and Secondary Spheres of Influence (**Figure 3.0-2**). The proposed Planning Area is approximately 10.3 square miles, or roughly 3.9 square miles (60 percent) larger than the current Planning Area. The Planning Area is bounded by Road 21 on the south, Stony Creek on the north, Road P on the east, and Road H on the west. Lands affected are located within a portion of Township 22 North, Range 3 West, as shown on the USGS Kirkwood and Orland, California, 7.5-minute series quadrangle maps.

The Orland city limits encompass approximately 2.93 square miles in northeast Glenn County (**Table 4.8-1**). The Planning Area covered by the existing General Plan is approximately 6.42 square miles. Urban land uses in the existing Planning Area generally consist of residential, commercial, office, recreational, and public uses within and adjacent to the City of Orland. Residential, industrial, and agricultural uses occur outside of the City. The existing City of Orland General Plan and Zoning Code currently guide the land uses in the City, while the Glenn County General Plan and Zoning Ordinance apply to areas outside the city limits.

The City of Orland is different from many cities in California in that it has two Spheres of Influence. The Primary Sphere of Influence, determined by the Glenn Local Agency Formation Commission (LAFCo), is the Sphere of Influence commonly associated with most cities – the area where future expansion of the City is most likely to occur within a 20 year time horizon. The Primary Sphere of Influence generally follows the city boundaries to the north and west (except for a significant extension in the northwest along Interstate 5), but extends farther in places to the east and south. The Secondary Sphere of Influence, also determined by LAFCo, identifies areas where the City has an interest in future development that may occur. The boundaries of the Secondary Sphere of Influence are similar to those of the Primary Sphere of Influence, except that they are significantly extended to the west and south (in some instances beyond the boundaries of the existing Planning Area).

TABLE 4.8-1
EXISTING JURISDICTIONAL AREAS

Jurisdiction	Total Acres	Square Miles
City Boundary	1,871	2.9
Primary Sphere of Influence	2,745	4.3
Secondary Sphere of Influence	4,630	7.3
Existing Planning Area	4,110	6.4
Proposed Planning Area	6,603	10.3

ANNEXATION AREAS

Since adoption of the previous General Plan Update in 2003, the City has annexed approximately 295 acres predominantly to the north and east, representing a 19 percent increase of the City's land area.

CURRENT LAND USE

Current City of Orland land use designations are presented in **Figure 4.8-1.** Zoning districts are shown in **Figure 4.8-2.**

Most of the land located outside of the existing city limits and within the Planning Area is devoted to agricultural and rural residential uses. The land adjacent to and west of Interstate 5 is zoned by Glenn County as Service Commercial (SC) and Highway-Visitor Commercial (HVC), primarily centered around the State Route (SR) 32 and South Avenue interchanges. Areas along State Route 32 east of the interchange with Interstate 5 are also zoned for Service Commercial. Several parcels along the railroad south of the city limits are zoned Limited Industrial (M-L). Areas near Haigh Field are zoned Aviation (A).

Outside of these major transportation corridors, the dominant zoning districts are Rural Residential Estate (a mixture of RE-1, -2, and -5), with minimum parcel sizes of 1, 2, and 5 acres. In the northern portion of the Planning Area, along Stony Creek, the zoning is generally agricultural.

URBAN DESIGN AND CIVIC ANATOMY

Historically, the development of the City of Orland has been strongly influenced by major transportation corridors. Originally, the City's development was influenced by the railroad, adjacent to which the downtown area was formed. Later, the construction of County Road 99W (previously known as Highway 99) attracted commercial development along the highway corridor and another commercial area was developed along State Route 32. The most recently constructed commercial center in Orland is the Sapphire Plaza retail/office center, which is north of State Route 32. Additionally, the City has zoned for additional development along Interstate 5 in the future.

Traditionally, Orland has served as a public service center for residents of the City and northern Glenn County. Public service facilities for City residents are concentrated in the downtown area, including City Hall, the Orland Police Department, the Orland Volunteer Fire Department, and the Orland Library. The U.S. Post Office is also located in the downtown area adjacent to City Hall. The Orland branch of the County Court, a Sheriff's substation, two maintenance yards for the County Department of Public Works, and the City Public Works Department are located in the southeast portion of the City. Located in the northern portion of the City is Orland High School, which serves high school students throughout northern Glenn County except for those in the Hamilton City area.

As is the case in most towns in California, Orland is divided into several distinct areas, as indicated by its land use pattern. These areas include the downtown and its adjacent historic neighborhoods, strip commercial development along both County Road 99W (Sixth Street) and East Walker Street (State Route 32), industrial development adjacent to the railroad tracks, and freeway-oriented commercial activities. Most of the older residential development exists in the eastern portion of the City, east of the railroad. More recent residential development has occurred around the edges of the City, particularly in the northwestern and northeastern corners and to the south.

In recent years, growth and development in Orland has been influenced by the City's relative proximity to the Chico Urban Area. As Chico has grown, employment opportunities have increased, but the availability of quality affordable housing in Chico has not kept pace. Many people whose place of employment is located in Chico have bought housing in Orland, where housing is more affordable. Aside from stimulating newer residential development, the Orland residents who work in Chico may also be reinforcing the commercial character of East Walker Street, which as part of State Route 32 is the main route taken by commuters to Chico. However, growth in Chico is generally believed to have hindered commercial development in Orland. The proximity of Chico, its variety of retail establishments, and their competitive pricing have attracted many shoppers from the City, especially those who commute to Chico for work. By contrast, Orland has only one significant shopping center (Stony Creek Square, off Interstate 5 at the South Street exit, much of which is vacant) and smaller retail establishments in downtown and along the major City roadways. More recently, commercial development has begun to occur along SR 32, including the Sapphire Plaza retail/office center.

SPECIAL PLANNING DISTRICTS

The Special Planning Districts are overlay designations which portray uses the City would like to encourage. Special Planning Districts have been defined within the proposed General Plan to document the major planning issues of areas which may be developed during the term of the proposed General Plan. The general character and anticipated uses envisioned by the City are described for each Special Planning District. The Special Planning Districts are listed below and graphically depicted on **Figure 4.8-3.**

- Downtown District
- Sixth Street District
- Walker Street District
- Southwest Orland Special Planning Area
- Westside Freeway Special Planning Area
- Northeast Orland Special Planning Area

PROPOSED LAND USE ELEMENT (2008–2028)

The goals of the Land Use Element in the proposed General Plan are as follows:

Goal 2.1: Maintain and promote the qualities that make Orland a desirable community.

Goal 2.2: To maintain a compact urban form and preserve agricultural land outside of the City.

Goal 2.3: Create and maintain neighborhoods that ensure a high quality of life in Orland.

Goal 2.4: Promote the expansion and retention of existing commercial establishments and encourage new commercial development in the City.

Goal 2.5: Promote economic growth in the City of Orland through attraction and retention of industry in order to enhance employment opportunity and maximize the availability of goods and services within the community.

The proposed Land Use Element includes a General Plan Land Use Diagram, a detailed land use plan for the City of Orland and its proposed Planning Area (**Figure 4.8-1**). This diagram assigns land use designations to all lands within the proposed Planning Area. In a few cases,

designations in the proposed Land Use Diagram would differ from those in the current General Plan. One of the proposed designations would be new: Mixed Use. All other designations in the current General Plan would remain the same in the proposed General Plan. The densities allowed under the High Density Residential designation would increase from 15 to 25 dwelling units per acre.

Land use designations under the proposed Land Use Diagram include:

- Low Density Residential – allows 0–6 housing units per acre
- Medium Density Residential – allows 6–10 housing units per acre
- High Density Residential – allows 10–25 housing units per acre
- Mixed Use
- Commercial
- Public Facility
- Heavy Industrial
- Light Industrial/Commercial
- Open Space/Resources Conservation

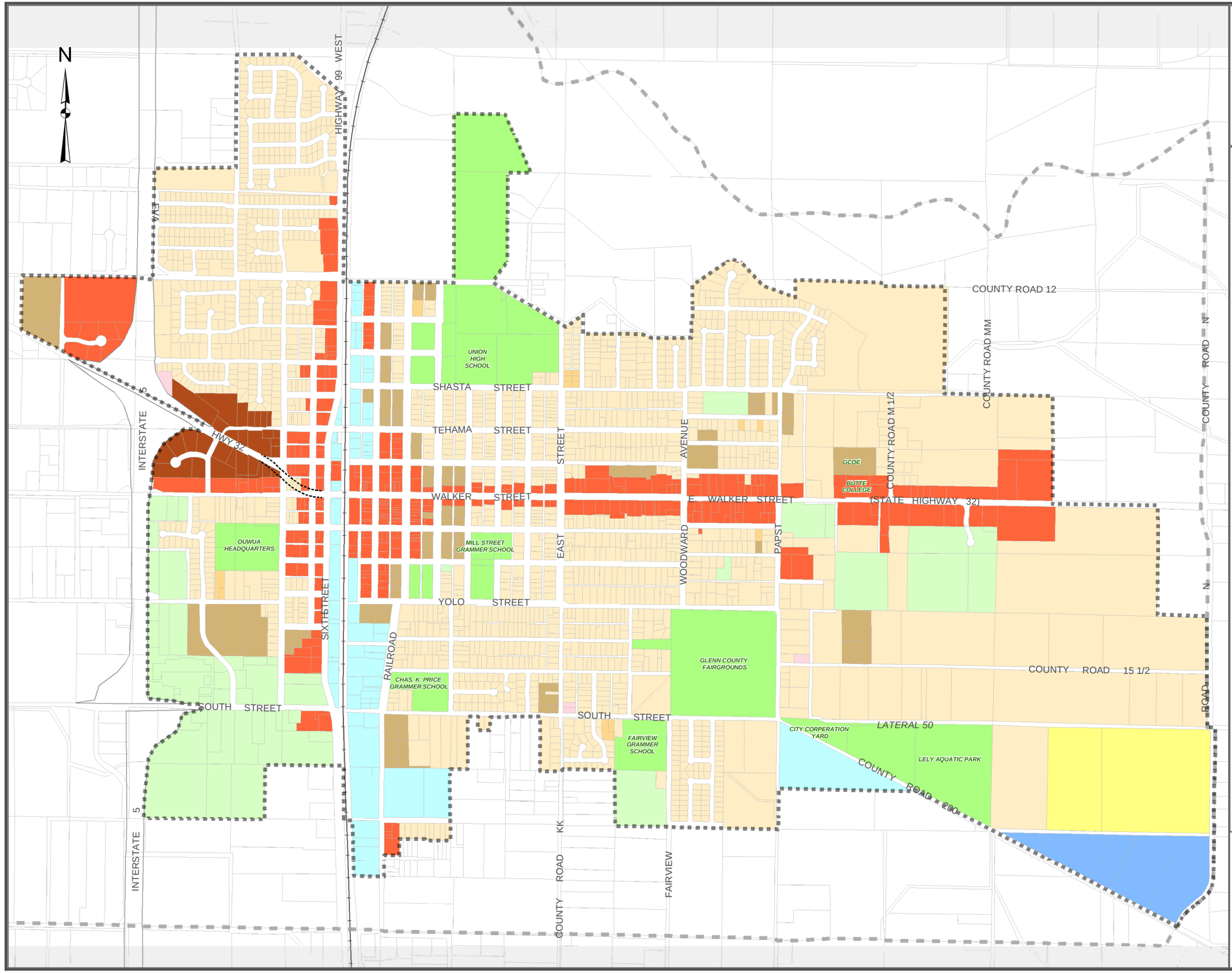
Table 4.8-2 provides a breakdown of designated land uses by acreage within the proposed Planning Area, as set forth in the Land Use Diagram for the proposed General Plan.

TABLE 4.8-2
DESIGNATED LAND USES IN PROPOSED PLANNING AREA

Land Use Designation	Existing Acreage	Proposed Acreage	Change (acres)	Percentage Change
Commercial	247.3	276.8	29.5	11.9%
Heavy Industrial	36.6	214.7	178.1	486.6%
Light Industrial/Commercial	295.7	651.4	355.7	120.3%
Open Space/Resources Conservation	440.4	668.8	228.4	51.9%
Public Facility	183.7	583.7	400	217.7%
Residential Estates	785.7	1,681.2	895.5	114.0%
High Density Residential	65.9	107.7	41.8	63.4%
Medium Density Residential	54.7	53.9	–0.8	-1.5%
Low Density Residential	1,501.3	1,674.4	173.1	11.5%
Mixed-Use (new designation)	0	22.9	22.9	---
Other	484.2	668.5	184.3	38.1%
Total	**4,095.5**	**6,603.0**	**2,507.5**	**61.2%**

Figure 4.8-2

Zoning Map



- Sphere of Influence
- City Boundary
- R-1 Residential One Family
- R-2 Residential Two Family
- R-3 Multiple Family
- R-E Residential Estate
- C-1 Neighborhood Commercial
- C-2 Community Commercial
- C-H Highway Service
- M-L Limited Industrial
- M-H Heavy Industrial
- P-D Planned Development
- P-F Public Facilities

0 0.25 0.5 Miles

CITY OF ORLAND 1875

PMC

Figure 4.8-1

Existing Land Use Designations

N

INTERSTATE 5

HIGHWAY 99 WEST

Hamilton Creek

Stony Creek

Stony Creek Irrigation Canal

Tehama-Colusa Canal

SOUTH CANAL

COUNTY ROAD 12

COUNTY ROAD MM

COUNTY ROAD N

South Main Canal Lateral No 40

UNION HIGH SCHOOL

SHASTA STREET

TEHAMA STREET

WALKER STREET

(STATE HIGHWAY 32)

HWY 32 REALIGNMENT

GCOE

BUTTE COLLEGE

OUWUA HEADQUARTERS

MILL STREET GRAMMER SCHOOL

YOLO STREET

SOUTH STREET

CHAS. K. PRICE GRAMMER SCHOOL

GLENN COUNTY FAIRGROUNDS

COUNTY ROAD 15 1/2

CITY CORPERATION YARD

LATERAL 50

LELY AQUATIC PARK

COUNTY ROAD 200

FAIRVIEW GRAMMER SCHOOL

FAIRVIEW

COUNTY ROAD KK

SIXTH STREET

EAST STREET

WOODWARD AVENUE

PAPST

- Planning Area
- City Boundary

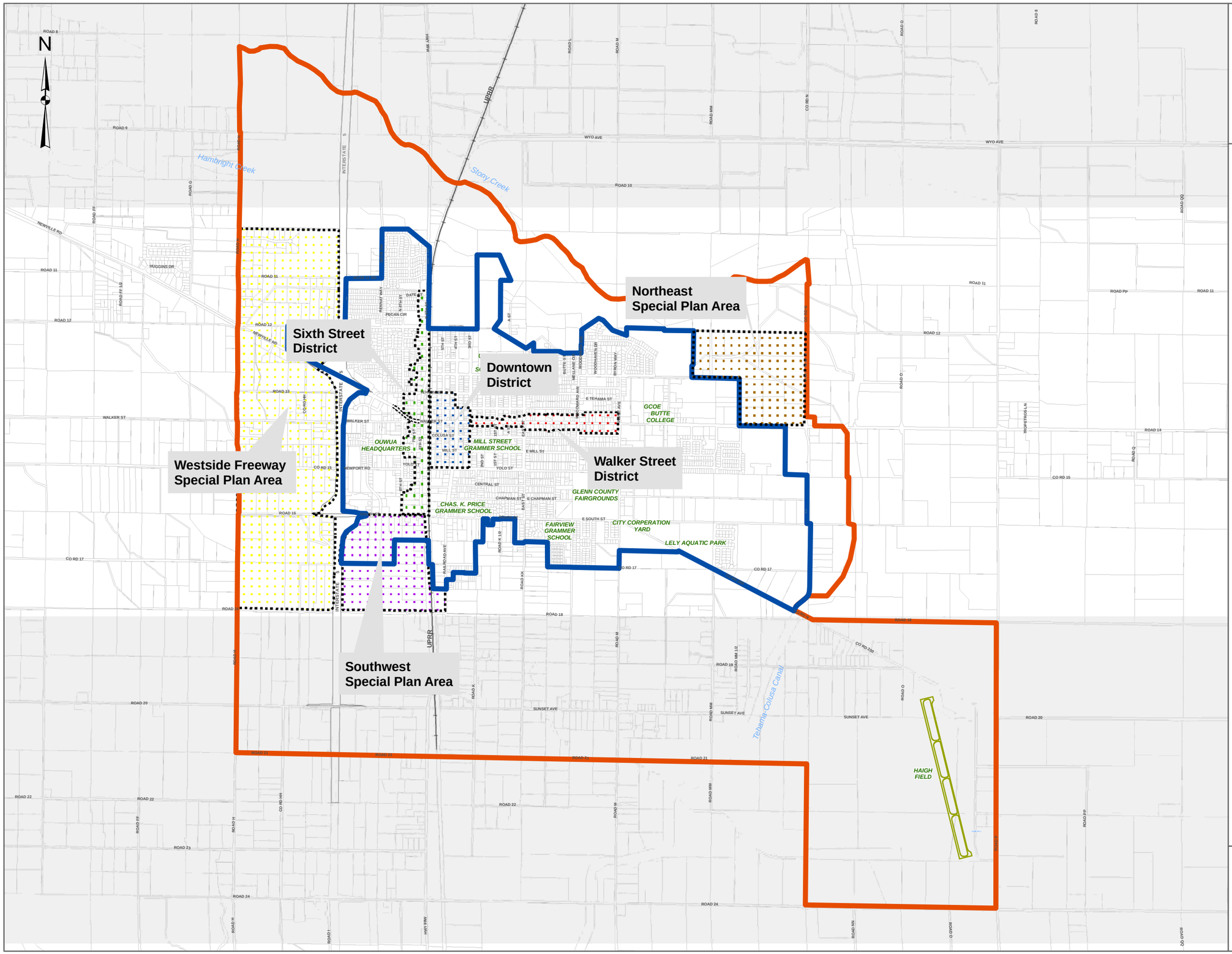
- C - Commercial
- I-H - Heavy Industrial
- I-L/C - Light Industrial/Comm.
- R-E - Residential Estate
- R-L - Low Density Residential
- R-M - Med. Density Residential
- R-H - High Density Residential
- P-F - Public Facility
- OS/RC - Open Space/ Resource Conservation

0 0.25 0.5 Miles

PMC

Figure 4.8-3

Special Planning Districts



- Planning Area
- City Boundary

0 0.25 0.5 Miles

PROPOSED GENERAL PLAN BUILDOUT ESTIMATE

Table 4.8-3 shows the calculated buildout population from the 2003 General Plan, the additional acreage of undeveloped land in each undeveloped residential designation, the potential number of dwelling units, and buildout population estimates. The population estimates are based on an assumption of 3.0 persons per single-family unit, 2.5 persons per medium density multi-family unit, and 2.0 persons per high density multi-family unit.

Assuming Orland's residential land were built to its full potential, with the density of each dwelling unit matching the persons per household as stated above, the total population could reach over 25,000 with over 22,000 of these people occupying single-family residences. Community design requirements, site-specific constraints, and market factors will reduce the potential buildout well below the theoretical maximum calculations.

Table 4.8-4 shows the potential buildout for commercial and industrial uses for the Planning Area. The table identifies the existing acreages, 2003 General Plan possible square footages, and the total additional square footages possible under the current General Plan.

Under the 2003 General Plan, the City of Orland had 8,076,460 square feet available for commercial and industrial use. Under the proposed General Plan, there is an additional 7,034,940 square feet available, for a total square footage of 15,111,400 square feet eligible for commercial and industrial development.

TABLE 4.8-3
MAXIMUM RESIDENTIAL GROWTH AT BUILDOUT

Land Use Designation	Possible Population under 2003 General Plan	Additional Developable Acres under Proposed General Plan	Maximum Units per Acre	Additional Units	Population Per Unit	Additional Population under Proposed General Plan	Proposed General Plan Total Possible Population
Residential, Low Density (R-L)	27,021	173	6	1,038	3.0	3,114	30,135
Residential, Medium Density (R-M)	1,367	-1	10	-10	2.5	-25	1,342
Residential, High Density (R-H)	1,976	42	25	1,050	2.0	2,100	4,076
Residential, Estate (R-E)	4,713	896	2	1,792	3.0	5,377	10,090
Mixed Use (M)	-	29	15	435	2.0	870	870
Total	**35,082**	**1,138**		**4,305**		**11,436**	**46,513**

TABLE 4.8-4
MAXIMUM COMMERCIAL AND INDUSTRIAL GROWTH AT BUILDOUT

Land Use Designation	Possible Square Footage under 2003 General Plan	Additional Developable Acres under Proposed General Plan	Floor Area Ratio (FAR)	Additional Square Footage under Proposed General Plan	Proposed General Plan Total Additional Square Footage
Commercial – C	2,834,711	27	0.6	705,672	3,540,383
Light Industrial/Commercial – I-L/C	1,674,011	197	0.4	3,432,528	5,106,539
Heavy Industrial – I-H	3,567,738	95	0.7	2,896,740	6,464,478
Total	**8,076,460**	**319**		**7,034,940**	**15,111,400**

4.8.2 REGULATORY FRAMEWORK

STATE

California state law requires that every city and county adopt a general plan to guide physical development of the land within the jurisdiction's boundaries. The law requires the general plan to be comprehensive and requires the plan at a minimum to contain the following elements: land use, circulation, housing, conservation, open space, noise, and safety.

LOCAL

The Orland General Plan is used to guide future development in the Planning Area. The City's current General Plan was adopted in 2003. The Orland General Plan of 2003 states policies and programs that relate to community development and land use planning. Key policies and programs that relate to land use planning include Policy 1.1.A which states that development projects and other improvements must conform to an overall plan for the community and that consideration shall be given to the configuration of adjacent areas to be developed in the future. Program 1.1.A.6 requires the development of an annexation program for annexation of lands outside the present city limits to allow for coordinated, long-term planning and to reduce approval of incompatible uses on unincorporated land adjacent to the City. In 2007, the City Council approved a comprehensive Annexation Policy that is now in place. The General Plan also includes specific policies for residential, commercial, and industrial land uses. For example, Program 1.2.A.1 requires the City to develop subdivision design guidelines, which have been incorporated as Title 16 of the Municipal Code. Program 1.3.A.1 ensures that the integrity of residential neighborhoods is not compromised by commercial or industrial development.

Zoning Ordinance

The City of Orland Zoning Ordinance implements the policies and programs of the City's General Plan. It establishes zoning districts that guide the development and use of land within the City by setting allowable land uses within each district. The Zoning Ordinance provides development standards such as land use limitations, building setbacks, height limits, and sign standards, among others. By state law, the Zoning Ordinance must be consistent with the adopted General Plan. Therefore, should it adopt the proposed General Plan, the City shall update its Zoning Ordinance as necessary.

Airport Land Use Plans

There are two public airports within Glenn County: Haigh Field and Willows-Glenn Airport. Haigh Field is located southeast of the City on the northwest side of the intersection of County Roads 24 and P. The Glenn County Airport Land Use Commission adopted a Comprehensive Land Use Plan (CLUP) for Haigh Field in 1991. The CLUP regulates land use in three major areas: safety zones, noise zones, and height restrictions. It provides land use compatibility guidelines for lands near the airport, to avert potential safety problems and to ensure unhampered airport operations. Under California Government Code Section 65302.3(a), general plans must be consistent with any airport land use plan adopted pursuant to Public Utilities Code Section 21675. Section 4.13, Transportation and Circulation, of this Draft Environmental Impact Report (Draft EIR or DEIR) provides more information regarding the area's airports and their CLUPs.

Local Agency Formation Commission of Glenn County

In 1963, the State Legislature created local agency formation commissions (LAFCos) for each county, with the authority to regulate local agency boundary changes. Subsequently, the State has expanded the authority of LAFCos, most recently with the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. Among the goals of LAFCos, in accordance with state law, are to preserve agricultural and open space land resources and to provide for efficient delivery of services.

The Glenn LAFCo has authority over land use decisions in Glenn County affecting local agency boundaries. Its authority extends to the incorporated cities within the county. Specifically, LAFCo has the authority to review and approve or disapprove the following:

- Annexations to or detachments from cities or districts.
- Formation or dissolution of districts.
- Incorporation or disincorporation of cities.
- Consolidation or reorganization of cities or districts.
- Establishment of subsidiary districts.
- Development of, and amendments to, spheres of influence. The sphere of influence is the probable physical boundary and service area of each local government agency. This may extend beyond the current service area of the agency.
- Extensions of service beyond an agency's jurisdictional boundaries.
- Provision of new or different services by districts.
- Proposals that extend service into previously unserved territory in unincorporated areas.

In addition, the Glenn County LAFCo can initiate and conduct a Municipal Service Review (MSR) for services within its jurisdiction. An MSR typically includes a review of existing municipal services provided by a local agency and its infrastructure needs and deficiencies. It also evaluates financing constraints and opportunities, management efficiencies, opportunities for rate restructuring and shared facilities, local accountability and governance, and other issues. The most recent MSR for Orland was prepared in 2002.

4.8.3. IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

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

1) Physically divide an established community.

2) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific

plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

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

METHODOLOGY

Evaluation of potential land use impacts within the City of Orland through implementation of the proposed General Plan was based on a review of planning documents pertaining to the City of Orland, including the proposed City of Orland General Plan, City of Orland Zoning Ordinance, a field review of the City and surrounding areas, and consultation with appropriate agencies. Potential impacts to the proposed Planning Area outside the city limits were based on a review of planning documents relevant to those areas, including the Glenn County General Plan, the Comprehensive Land Use Plan for the Haigh Field, consultation with appropriate agencies, and field review. The analysis contained herein is based on buildout conditions for the proposed General Plan, as described in Section 4.0.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Physically Divide an Established Community

Impact 4.8.1 Land use designation changes in the proposed General Plan have the potential to physically divide or impact an established community. This is considered a **less than significant** impact.

The proposed General Plan is a document intended to assess existing community development issues and project needs for the next 20 years. The Land Use Element of the proposed General Plan attempts to provide effective utilization of the land, combining all the key components, i.e., agricultural, residential, commercial, and industrial land use, public uses, parks, and open spaces. The proposed General Plan includes some redesignation of land uses in the City (see **Figure 3.0-3**) and an expansion of the Planning Area boundaries. The City of Orland Planning Area was established as a means to provide a comprehensive approach to projecting future needs, taking into consideration existing uses and development patterns.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Land Use: Policy 2.1.A, Program 2.1.A.4, Policy 2.2.B, Policy 2.3.A, Program 2.3.A.3

Policy 2.1.A ensures that development projects conform to an overall plan for the community and that consideration is given to the configuration of adjacent areas to be developed in the future. Program 2.1.A.4 ensures that development complies with the design review process and Design Guidelines for all development types. Implementation of this program will ensure design compatibility with existing neighborhoods. Policy 2.2.B encourages future development in Orland to be located adjacent to existing communities by promoting infill development and redevelopment to enhance the efficiency of services. Policy 2.3.A requires the City to develop tools and controls that enable the City to guide residential growth, improvements, and development. Associated Program 2.3.A.3 utilizes site design techniques (increased setbacks, modified lot sizes, unit type restrictions, etc.), landscaping, and buffers to minimize land use incompatibilities between land uses.

It is the intent of the proposed General Plan to avoid the division of a community or otherwise impact an established community. Currently, the City could be considered to be divided by SR 32, with portions of the City on either side. Since there is no project of sufficient size envisioned in the proposed General Plan that could effectively further divide the existing community, it could be concluded that there is no impact. However, the term "community" could be a small neighborhood that could be affected by the extension of a new street, the creation of a school or park site, or the conversion of single-family dwelling to a more intense use. These issues are more of a concern of neighborhood design and compatibility, but in a sense could divide a community. This impact is considered to be **less than significant**, and there are several proposed General Plan policies and programs which emphasize design compatibility with existing and adjacent neighborhoods.

Mitigation Measures

None required.

Consistency with Land Use Regulations

Impact 4.8.2 Implementation of the proposed General Plan could lead to inconsistency with other land use plans and ordinances, particularly the City's Zoning Ordinance. This is considered a **less than significant** impact.

State law requires that the General Plan be comprehensive and that specific subjects or "elements" be addressed in the plan. The elements required by Section 65302(a) through (g) of the Government Code are land use, circulation, housing, conservation, open space, noise, and safety. State law also allows the local jurisdiction to include additional or "optional" elements to address specific issues of concern, as well as to combine the required and optional elements as deemed appropriate (Section 65303). The proposed General Plan combines Open Space and Conservation elements into a single element. By providing these elements within the proposed General Plan, state law is satisfied, and there is no impact.

Other state and federal agencies have some jurisdiction over portions of the proposed General Plan, at least to the extent that policies and programs of the General Plan cannot be inconsistent with their requirements. Those agencies with some authority include Federal Emergency Management Agency (flooding), Regional Water Quality Resource Board (water quality), Caltrans (state highways), and State Mining and Geology Board (mining). Glenn County also has authority in the areas of health, airport land use, and air quality. The land use designations presented in the proposed General Plan for the area within the Haigh Field Airport Safety Zone are either Industrial or Public Facility. These uses are consistent with the land use regulations in the Orland Haigh Field Airport Comprehensive Land Use Plan. The effect these agencies have on the proposed General Plan is discussed throughout the DEIR in those sections where their authority applies, i.e., hazards, hydrology, transportation, and air quality. In all instances, the proposed General Plan and these affected agency requirements are consistent and there is a **less than significant.**

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed General Plan is the constitution of local land use planning. It establishes the framework for other local legislation to follow. All related legislation such as the Zoning Ordinance, the Subdivision Ordinance, and all land use development actions must conform to the proposed General Plan. In those instances where local laws are inconsistent with the

General Plan, these laws, after adoption of the proposed General Plan, will be updated for consistency with the General Plan.

Mitigation Measures

None required.

Conflict with Habitat Conservation Plan or Natural Community Conservation Plan

Impact 4.8.3 The proposed General Plan would not conflict with any habitat conservation plan or natural community conservation plan in the area. Consequently, there is **no impact.**

Implementation of the proposed General Plan would not lead to incompatible development with any area habitat conservation plan or natural community conservation plans as there are no habitat conservation plans or natural community conservation plans in existence in the City of Orland or Glenn County. There would be **no impact** resulting from the adoption of the plan.

Mitigation Measures

None required.

4.8.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

Land use impacts are typically isolated to a jurisdiction, except where land uses may interact or conflict with adjacent jurisdictions. The cumulative setting for land use includes existing, approved, proposed, and reasonably foreseeable development within the Planning Area. There are known development projects (see **Table 4.0-7** in Section 4.0) in the City that will contribute to cumulative changes in the landscape and land uses within the Planning Area. The reader is referred to Section 4.2, Agricultural Resources, for discussion of cumulative agricultural-related impacts.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Land Use Conflicts

Impact 4.8.4 Implementation of the proposed General Plan, in addition to existing, proposed, approved, and reasonably foreseeable development in the City and Glenn County, would contribute to cumulative land conflicts. This would be a **less than cumulatively considerable** impact.

Under cumulative conditions, the proposed General Plan and subsequent development would not contribute to land use conflicts beyond those discussed in Impacts 4.2.2, 4.2.3, 4.9.1, and 4.9.2. Conflicts between planning documents, such as the Orland Haigh Field Airport Comprehensive Land Use Plan and the proposed General Plan Land Use Map, would be specific to the proposed General Plan and to individual development projects and would not have an increased significance in the aggregate under cumulative conditions. Similarly, land use conflicts, particularly those between urban and agricultural resources that would occur under cumulative development conditions, would also be site-specific. There are known

development projects in the City as well as in Glenn County that will contribute to cumulative changes in the landscape and land uses within the Planning Area. However, these projects are not expected to interact or conflict with one another. This impact is **less than cumulatively considerable**.

Mitigation Measures

None required.

REFERENCES

City of Orland. 1996. *City of Orland Downtown Business Development and Recruitment Plan*. Adopted March 25, 1996.

City of Orland and Glenn County. 2000. *Administrative Draft Freeway Area Specific Plan*.

Coshow, Patricia, Orland Business Improvement Association. 2002. Telephone conversation with Terry Farmer, PMC, January 24.

Glenn County. 1993. *Glenn County General Plan*.

4.9 Noise

This section describes terminology used to discuss noise and analyzes the ambient noise environment of the proposed General Plan Planning Area as well as potential impacts of implementation of the proposed General Plan associated with noise such as traffic noise and operational noise. Provided in this section is an analysis of the ambient noise characteristics of the proposed Planning Area, including the identification of major noise sources. Key issues addressed in this section include: exposure of noise-sensitive land uses to excessive noise levels, and increases in traffic noise. The information provided in this section is based on a noise analysis performed by Bollard Acoustical Consultants, Inc. The noise model output is provided in **Appendix D** of this document.

4.9.1 EXISTING SETTING

ACOUSTIC FUNDAMENTALS

Noise is generally defined as unwanted sound. Sound is mechanical energy transmitted in the form of a wave because of a disturbance or vibration. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they are discerned as sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Sound levels are described in terms of both amplitude and frequency.

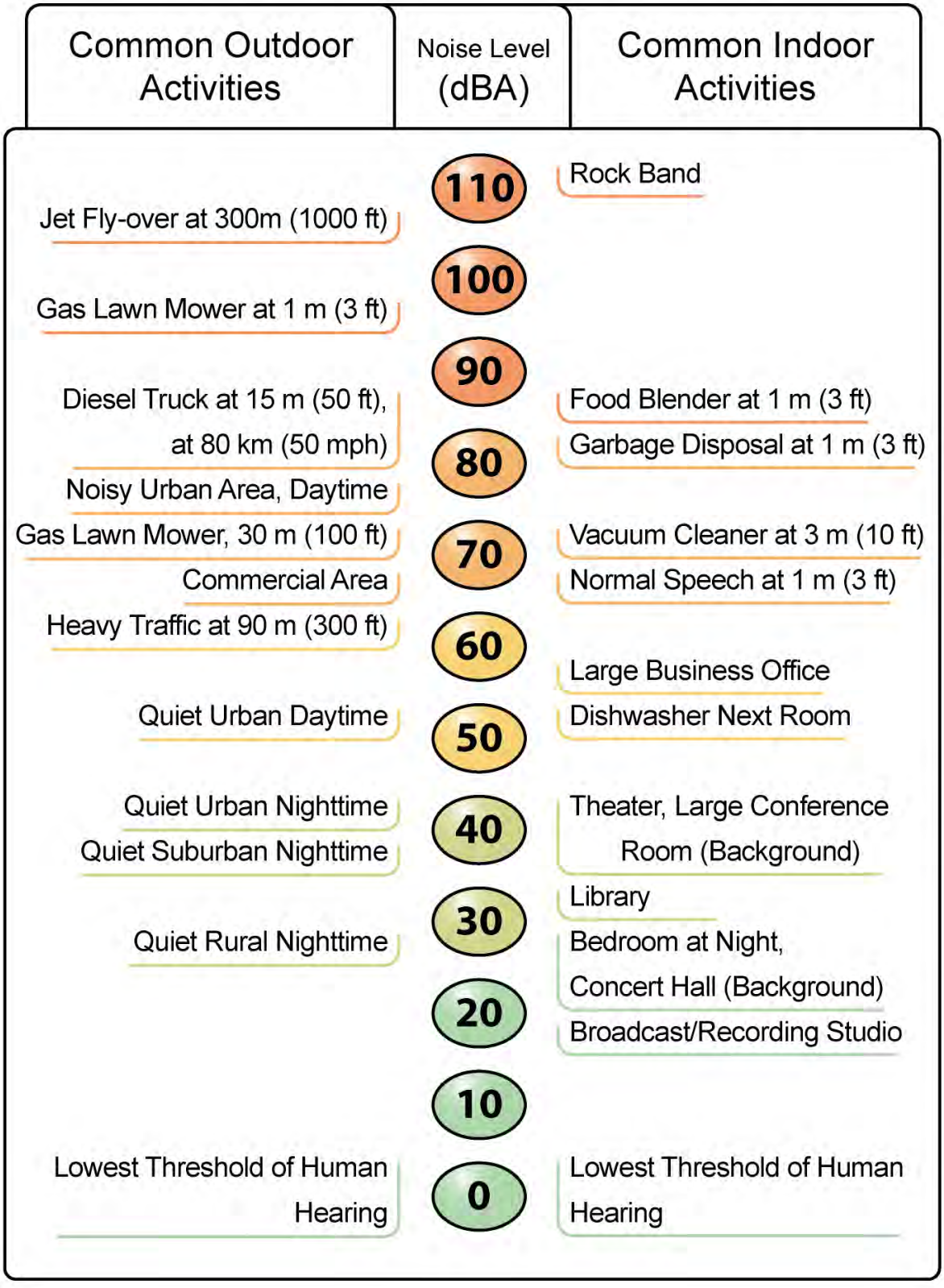
Amplitude is defined as the difference between ambient air pressure and the peak pressure of the sound wave. Amplitude is measured in decibels (dB) on a logarithmic scale. For example, a 65 dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). Amplitude is interpreted by the ear as corresponding to different degrees of loudness. Laboratory measurements correlate a 10 dB increase in amplitude with a perceived doubling of loudness and establish a 3 dB change in amplitude as the minimum audible difference perceptible to the average person.

The frequency of sound is defined as the number of fluctuations of the pressure wave per second. The unit of frequency is the Hz. One Hz equals one cycle per second.

The human ear is not equally sensitive to sound of different frequencies. For instance, the human ear is more sensitive to sound in the higher portion of this range than in the lower and sound waves below 16 Hz or above 20,000 Hz cannot be heard at all. To approximate the sensitivity of the human ear to changes in frequency, environmental sound is usually measured in what is referred to as "A-weighted decibels" (dBA). On this scale, the normal range of human hearing extends from about 10 dBA to about 140 dBA. Common community noise sources and associated noise levels, in dBA, are shown in **Figure 4.9-1.**

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

FIGURE 4.9-1
TYPICAL A-WEIGHTED SOUND LEVELS OF COMMON NOISE SOURCES



Human Responses to Noise

Noise in a community has been cited as being a health problem. Not in terms of actual physiological damages such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities such as sleep, speech, recreation, and tasks demanding concentration or coordination. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source(s) increases, and the acceptability of the environment for people decreases. This decrease in acceptability and the threat to public well-being are the bases for policies preventing exposures to excessive community noise levels.

To control noise from fixed sources which have developed from processes other than zoning or land use planning, many jurisdictions have adopted community noise control ordinances. Such ordinances are intended to abate noise nuisances and to control noise from existing sources. They may also be used as performance standards to judge the creation of a potential nuisance or potential encroachment of sensitive uses on noise-producing facilities. Community noise control ordinances are generally designed to resolve noise problems on a short-term basis (usually by means of hourly noise level criteria) rather than on the basis of 24-hour or annual cumulative noise exposure. Sound levels can be reduced by placing barriers between the noise source and the receiver; the barriers work best when placed directly at the source or at the receiver. In general, barriers decrease noise levels when the structure breaks the "line of sight" between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise, but are less effective than solid barriers.

In addition to the A-weighted noise level, other factors should be considered in establishing criteria for noise sensitive land uses. For example, sounds with noticeable tonal content such as whistles or horns may be more annoying than the A-weighted sound level alone suggests. Many noise standards apply a penalty or correction of +5 dBA to such sounds. The effects of tonal content are generally more of a concern at nighttime when residents may notice the sound in contrast to relatively low background noise levels.

Because many rural residential areas experience very low ambient noise conditions, residents may express concern about the loss of "peace and quiet" due to the introduction of a noise which was not previously audible. In very quiet environments, the introduction of virtually any change in local activities will cause an increase in noise levels. A change in noise level and the loss of "peace and quiet" is the inevitable result of land use or activity changes in such areas. Audibility of a new noise source and/or increases in noise levels within recognized acceptable limits are not usually considered to be significant noise impacts, but these concerns should be addressed in the planning and environmental review processes.

Noise Descriptors

The intensity of environmental noise fluctuates over time, and several descriptors of time-averaged noise levels are used. The three most commonly used descriptors are L_{eq}, L_{dn}, and CNEL. The energy-equivalent noise level, L_{eq}, is a measure of the average energy content (intensity) of noise over any given period. Many communities use 24-hour descriptors of noise levels to regulate noise.

The day-night average noise level, L_{dn}, is the 24-hour average of the noise intensity, with a 10-dBA "penalty" added for nighttime noise (10 PM to 7 AM) to account for the greater sensitivity to noise during this period.

CNEL, the community equivalent noise level, is similar to L_{dn} but adds an additional 5-dBA penalty for evening noise (7 PM to 10 PM).

Another descriptor that is commonly discussed is the single-event noise exposure level (SENEL), also referred to as the sound exposure level (SEL). The SENEL/SEL describes a receiver's cumulative noise exposure from a single noise event, which is defined as an acoustical event of short duration (0.5 second), such as a backup beeper, the sound of an airplane traveling overhead, or a train whistle, and involves a change in sound pressure above a defined reference value (usually approximately 40 dBA).

Noise analyses may also depend on measurements of L_{max}, the maximum instantaneous noise level during a specific period of time, and L_{min}, the minimum instantaneous noise level during a specific period (Caltrans, 1996).

Common noise level descriptors are summarized below in **Table 4.9-1**.

TABLE 4.9-1
COMMON ACOUSTICAL DESCRIPTORS

Descriptor	Definition
Energy Equivalent Noise Level (L_{eq})	The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value (in dBA) is calculated.
Minimum Noise Level (L_{min})	The minimum instantaneous noise level during a specific period of time.
Maximum Noise Level (L_{max})	The maximum instantaneous noise level during a specific period of time.
Day-Night Average Noise Level (DNL or L_{dn})	The 24-hour Leq with a 10 dBA "penalty" for noise events that occur during the noise-sensitive hours between 10 PM and 7 AM. In other words, 10 dBA is "added" to noise events that occur in the nighttime hours to account for increases in sensitivity to noise during these hours.
Community Noise Equivalent Level (CNEL)	The CNEL is similar to the Ldn described above, but with an additional 5 dBA "penalty" added to noise events that occur between the hours of 7 PM to 10 PM. The calculated CNEL is typically approximately 0.5 dBA higher than the calculated L_{dn}.
Single Event Level (SEL)	The level of sound accumulated over a given time interval or event. Technically, the sound exposure level is the level of the time-integrated mean square A-weighted sound for a stated time interval or event, with a reference time of one second.

Source: Caltrans, 1996

EXISTING NOISE ENVIRONMENT

The major noise sources in Orland consist of Interstate 5 and local traffic on City streets, commercial and industrial uses, active recreation areas of parks, outdoor play areas of schools, auto racing events at the fairgrounds, and occasional railroad operations on the local railroad

tracks which run north-south through the City. Each of these noise sources is discussed individually below.

Transportation Noise Sources

Roadway Traffic Noise

The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) with the Calveno vehicle noise emission curves was used to predict traffic noise levels within Orland. The FHWA-RD-77-108 Model is considered acceptable for the development of General Plan traffic noise predictions.

Interstate 5 and State Route (SR) 32 are the two most heavily traveled roadways in the City of Orland. The FHWA Model was used with existing traffic data to develop L_{dn} contours for Interstate 5 and Highway 32, as well as other major roadways in the City of Orland. The FHWA Model input data for those roadways is provided in **Appendix D**. The predicted L_{dn} at a reference distance of 100 feet and the distances from the centerlines of the major roadways to the 60 and 65 dB L_{dn} contours are summarized in **Table 4.9-2**.

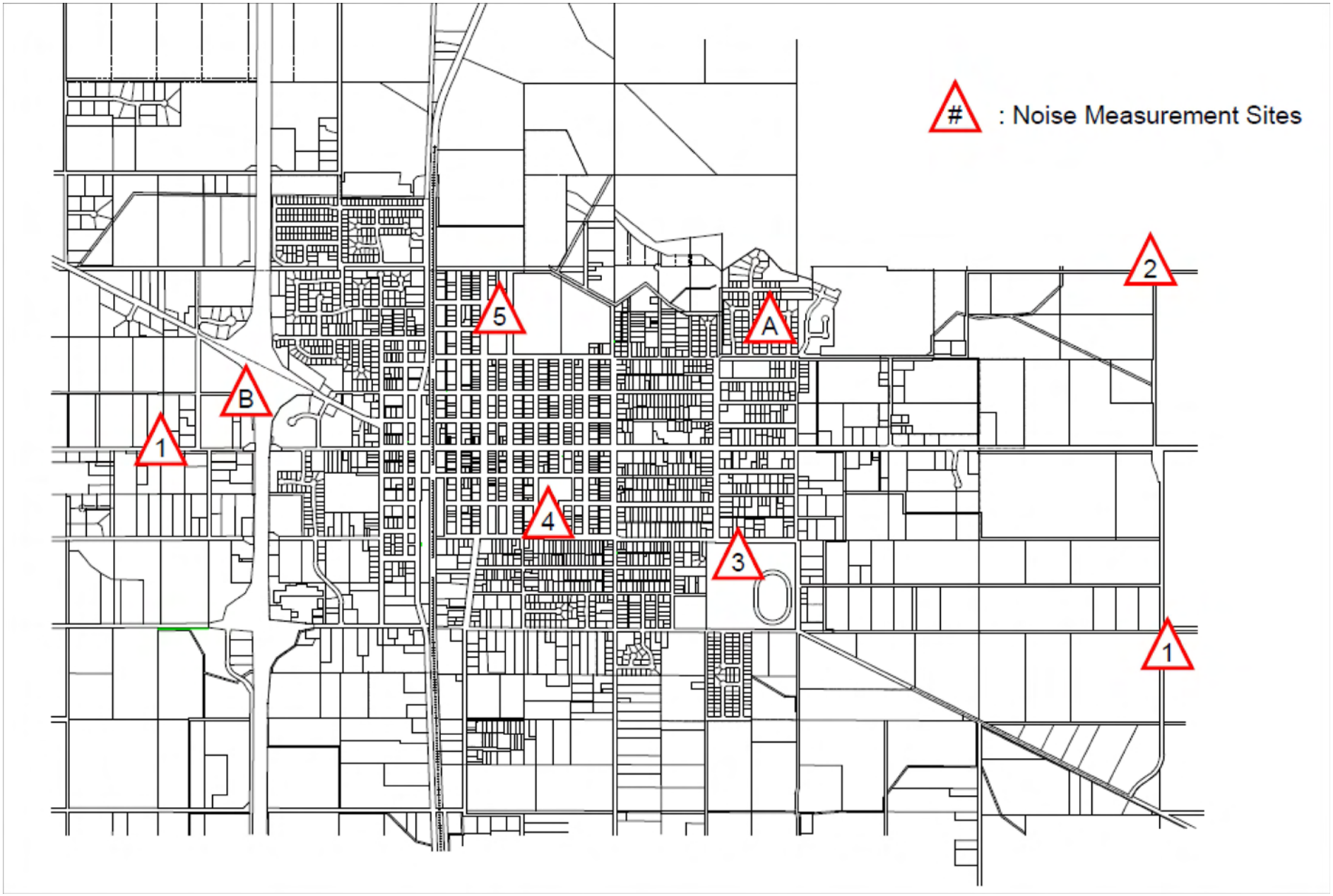
To check the accuracy of the FHWA Model in predicting noise levels for Interstate 5, continuous noise level measurements were conducted at the highway right of way on January 21-22, 2008, at location "B" identified on **Figure 4.9-2**. The noise measurement results from that location are provided in **Appendix D**. The 24-hour noise level measurements indicate that the FHWA Model provided a reasonably accurate assessment of existing Interstate 5 traffic noise levels in Orland.

TABLE 4.9-2
SUMMARY OF FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL INPUTS AND RESULTS
CITY OF ORLAND PROPOSED GENERAL PLAN – EXISTING CONDITIONS

Roadway	Segment	ADT	L_{dn} at 100 Feet	Distance to 70 dB L_{dn} (feet)	Distance to 65 dB L_{dn} (feet)	Distance to 60 dB L_{dn} (feet)
Almond Way	6th Street to 8th Street	1,025	51	5	11	23
Monterey Street	5th Street to 6th Street	1,425	52	6	14	29
6th Street	Trinity Street to Shasta Street	6,369	58	17	37	79
Tehama Street	5th Street to 6th Street	1,562	52	7	14	31
Shasta Street	Melanie Circle to Woodward Avenue	658	49	4	8	17
Newville Road	West of County Road HH	5,018	60	22	47	101
County Road HH	South of Newville Road	945	53	7	15	33
Tehama Street	Northeast of SR 32	1,602	55	10	22	47
5th Street	North of Walker Street (SR 32)	756	49	4	9	19
5th Street	South of Walker Street (SR 32)	1,427	52	6	14	29
4th Street	North of Walker Street (SR 32)	1,210	51	6	12	26
4th Street	South of Walker Street (SR 32)	2,141	54	8	18	38
3rd Street	North of Walker Street (SR 32)	1,079	51	5	11	24

Roadway	Segment	ADT	L_{dn} at 100 Feet	Distance to 70 dB L_{dn} (feet)	Distance to 65 dB L_{dn} (feet)	Distance to 60 dB L_{dn} (feet)
3rd Street	South of Walker Street (SR 32)	1,240	51	6	12	27
2nd Street	North of Walker Street (SR 32)	474	47	3	7	14
2nd Street	South of Walker Street (SR 32)	725	49	4	9	19
A Street	North of Walker Street (SR 32)	209	44	2	4	8
A Street	South of Walker Street (SR 32)	406	47	3	6	13
East Street	North of Walker Street (SR 32)	2,482	54	9	20	42
East Street	South of Walker Street (SR 32)	3,072	55	11	23	49
Woodward Avenue	North of Walker Street (SR 32)	1,951	53	8	17	36
County Road M ½	North of Walker Street (SR 32)	963	50	5	10	22
4th Street	Mill Street to Yolo Street	1,350	52	6	13	28
Yolo Street	West of Papst Avenue	1,045	51	5	11	24
County Road 16	West of County Road HH	1,160	51	5	12	25
Cortina Drive	North of South Street	723	49	4	9	19
8th Street	North of South Street	1,039	51	5	11	24
6th Street	North of South Street	5,372	58	15	33	71
6th Street	South of South Street	4,612	60	21	44	95
Railroad Avenue	North of South Street	1,983	53	8	17	36
East Street	North of South Street	2,311	54	9	19	40
South Street	West of Papst Avenue	2,010	53	8	17	37
Pabst Avenue	South of South Street	1,284	54	9	19	41
South Street	West of County Road N	981	53	7	16	34
County Road N	North of South Street	206	44	2	4	8
SR 32 (Walker Street)	East of Interstate 5	5,600	58	16	34	73
SR 32 (Walker Street)	East of 6th Avenue	10,800	61	24	52	113
SR 32 (Walker Street)	East of Papst Avenue	7,600	62	29	62	133
SR 32 (Walker Street)	East of County Road N	7,600	64	40	86	186

Source: Bollard Acoustical Consultants, Inc., 2009



Source: KD Anderson, 2009

Figure 4.9-2

Ambient Noise Measurement Locations

Roadway Traffic Noise

According to the *Railroad Atlas of North America*, the railroad tracks in Orland are operated by the California Northern Railroad (CFNR). The tracks run from north to south and generally parallel 6th Street (Hwy 99 West).

According to noise level measurements and field observations conducted by Bollard Acoustical Staff, this line has relatively few train passages per day. Due to the low number of existing daily railroad operations on the CFNR, railroad noise generation in Orland is not expected to exceed accepted land-use compatibility criteria at noise-sensitive land uses in the City. It is recognized, however, that the use of the railroad warning horns at the roadway crossings results in brief periods of elevated noise levels in the proximity of the tracks.

It is difficult to report existing, or predict future, railroad noise exposure in the City of Orland without knowing if, or to what degree, railroad activity currently exists or may change in the future. **Table 4.9-3** was developed to estimate the distances to the 60 and 65 dB L_{dn} railroad noise contours for various numbers of daily trains in Orland. The **Table 4.9-3** data assumes that, since this is not a main line, additional railroad operations in Orland would likely occur primarily during daytime hours (7 am to 10 pm). The **Table 4.9-3** data also assumes a mean railroad sound exposure level (SEL) of 100 dB at a distance of 100 feet.

TABLE 4.9-3
RAILROAD NOISE EXPOSURE AS A FUNCTION OF THE NUMBER OF DAILY TRAINS

Number of Daily Trains	L_{dn} @ 100 feet, dB		Distance to 60 dB L_{dn} Noise Contours	
	Without Horn	With Horn	Without Horn	With Horn
1	51	56	24	51
2	54	59	38	81
3	55	60	49	106
5	58	63	69	150
7	59	64	87	187
10	61	66	110	237

Note: The predicted distances to the Ldn contours assume a mean railroad sound exposure level of 100 dB without horn usage and 105 dB with horn usage at a reference distance of 100 feet from the tracks and that all train operations occur during the daytime hours.
Sources: Bollard Acoustical Consultants, Inc., 2009

Non-Transportation Noise Sources

The production of noise is a result of many processes and activities, even when the best available noise control technology is applied. Noise exposures within industrial facilities are controlled by Federal and State employee health and safety regulations, but exterior noise levels may exceed locally acceptable standards. Commercial, recreational and public service facility activities can also produce noise which affects adjacent sensitive land uses.

From a land use planning perspective, fixed-source noise control issues focus upon two goals: to prevent the introduction of new noise-producing uses in noise-sensitive areas, and to prevent encroachment of noise-sensitive uses upon existing noise-producing facilities. The first goal can be achieved by applying noise performance standards to proposed new noise-producing uses.

The second goal can be met by requiring that new noise-sensitive uses in proximity to noise-producing facilities include mitigation measures and/or conditional of approval to ensure compliance with those noise performance standards.

Descriptions of existing fixed noise sources in the City of Orland are provided below. These uses are intended to be representative of the relative noise generation of such uses, and are intended to identify specific noise sources which should be considered in the review of development proposals. Site specific noise analyses should be performed where noise sensitive land uses are proposed in proximity to these (or similar) noise sources, or where similar sources are proposed to be located near noise-sensitive land uses.

Musco Family Olive Company

Operations at the Musco Family Olive Co. facility consist of the processing of olives. According to Mr. Matt Koball of Musco Family Olive Co., operations at this facility typically occur in 8-hour shifts, 5 days per week, but the plant is not precluded from 24-hour operations. Typical noise-producing equipment used at this facility consists of forklifts, pumps, and boilers, with much of the plant equipment housed indoors. The plant generates approximately one truck trip on a typical day with more during harvest time. Mr. Koball was unaware of any recent noise complaints associated with the operation of this facility, and the plant has no current plans for expansion.

Duche Nut Co. Inc. - 1502 Railroad Avenue

Operations at the Duche Nut Company consist of processing almonds. According to Mr. John Willson of Duche, operations at this facility occur year round, but are heaviest during almond harvest season, which is late summer through the end of the year. Duche normally operates two 8-hour shifts, 5 days per week, but is not precluded from operating 24-hours per day, seven days per week during busy times. Typical noise-producing equipment at this facility includes fans blowers, overhead conveyors, truck traffic and forklifts. The plant generates approximately 10 truck trips on a typical busy day during harvest season. Mr. Bryant was unaware of any recent noise complaints associated with the operation of this facility, and there are currently no specific plans for expansion of this facility which would cause noise levels to increase appreciably in the community.

Baldwin Minkler Farms - 320 E. South Street

Operations at the Baldwin-Minkler Farms facility consist of processing almonds. According to Mr. Bill Minkler, operations at this facility are heaviest during almond harvest season, but regular operations occur year-round. Baldwin-Minkler typically operates one 8-hour shift, 5 days per week, with more intensified operations during harvest season. Baldwin Minkler Farms are not precluded from operating 24-hours per day if necessary to meet demand. Most of the noise producing equipment associated with this facility is enclosed, but an air-handling/dust collection system is located outdoors and generates noise. In addition, the plant generates approximately 5 truck trips on a typical busy day during harvest season. Mr. Minkler was unaware of any recent noise complaints associated with the operation of this facility, and there are currently no specific plans for expansion of this facility which would cause noise levels to increase appreciably in the community.

Fairground Racing Events

The Glenn County Fairgrounds are located at the intersection of South Street and Papst Avenue, and auto racing events typically occur weekly at the fairgrounds on Saturday nights between April and October. The events usually begin about 7 p.m. There is an 11 p.m. curfew on the racing events. The race track is less than 1/4 mile, and standard stock car type racing events are held at this venue. According to a contract with the racing promoter, the event is not allowed to generate noise levels in excess of 95 dB at a 100-foot radius, and the promoter is required to conduct noise monitoring during the events. Occasional noise complaints have been received regarding the racing events in the past, but the complaints do not appear to be widespread, and are reportedly handled by providing information about the events to the complainant.

General Service Commercial & Light Industrial Uses

Noise sources associated with service commercial uses such as automotive and truck repair facilities, tire installation centers, car washes, loading docks, corporation yards, hardware and feed stores, are found at various locations within the City of Orland. Many of these sources are located on Hwy 32, 6th St, Railroad Avenue, 3rd Street, 4th Street, and County Road 200. The noise emissions of these types of uses are dependent on many factors, and are therefore, difficult to quantify precisely. Nonetheless, noise generated by these uses contributes to the ambient noise environment in the immediate vicinity of these uses, and should be considered where either new noise-sensitive uses are proposed nearby or where similar uses are proposed in existing residential areas.

Parks and School Playing Fields

There are several park and school uses within the City limits. These uses are spread throughout the City. Noise generated by these uses depends on the age and number of people utilizing the respective facility at a given time, and the types of activities they are engaged in. School playing field activities tend to generate more noise than those of neighborhood parks, as the intensity of school playground usage tends to be much higher. 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.

Airports

The City of Orland is separated from the Haigh Field Airport, which is operated by Glenn County, by a considerable distance. Although occasional aircraft over flights of the City occur, the City of Orland is located well beyond the noise impact zones of this airport, as illustrated by the noise contours contained within the Airport's Land Use Plan (Bollard Acoustical Consultants, Inc., 2009). As a result, the existing ambient noise environment of the City of Orland is not significantly influenced by aircraft noise.

Community Noise Survey

To quantify existing noise levels in the quieter parts of the City of Orland, a community noise survey was performed at seven locations in this City which are removed from major noise sources. These survey locations were chosen to be in close proximity to those used in the 2003

General Plan noise survey. One of the seven locations was monitored over a continuous 24-hour period, while the other six locations were each monitored for two short term periods during daytime hours and one during nighttime hours. The community noise survey noise measurement locations are shown on **Figure 4.9-2**. The results of the community noise survey are provided in **Table 4.9-4**.

TABLE 4.9-4
COMMUNITY NOISE MEASUREMENT SURVEY RESULTS

Site	Location	Dates	Time Period	L_{eq}	L_{max}	Estimated L_{dn}	Sources
1	Southeast corner of N Street and 16th Street	1-21-08	Morning	51	60	50	N Street traffic and distant traffic (Hwy 32)
		1-22-08	Afternoon	53	61		
		1-22-08	Nighttime	44	49		
2	Northwest corner of N Street and 12th Street	1-22-08	Morning	52	63	53	12th Street traffic, birds
		1-21-08	Afternoon	52	66		
		1-21-08	Nighttime	48	53		
3	On Fairgrounds south of East Yolo Street	1-22-08	Morning	51	63	55	East Yolo Street traffic
		1-22-08	Afternoon	54	64		
		1-21-08	Nighttime	48	59		
4	Library Park	1-22-08	Morning	55	64	56	Local and distant traffic
		1-15-08	Afternoon	56	62		
		1-22-08	Nighttime	49	60		
5	Spence Park	1-22-08	Morning	55	66	56	Local traffic
		1-22-08	Afternoon	54	64		
		1-21-08	Nighttime	49	57		
6	West side of H ½ Street	1-22-08	Morning	53	62	56	H ½ Street and Interstate 5 traffic
		1-22-08	Afternoon	52	89		
		1-21-08	Nighttime	45	59		
A	Woodhaven Drive residence	1-21/22-08	Morning	55	74	57	Local traffic, barking dog, and wind
			Afternoon	49	67		

Note: The Ldn was estimated for short-term noise level measurements (Sites 1-6)
Source: Bollard Acoustical Consultants, Inc., 2009

4.9.2 REGULATORY FRAMEWORK

FEDERAL

U.S. Environmental Protection Agency (EPA)

In 1974, the EPA Office of Noise Abatement and Control published a report entitled Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Although this document does not constitute EPA regulations or

standards, it is useful in identifying noise levels at which increased levels of annoyance would be anticipated. Based on an annual-average day-night noise level (expressed as L_{dn} or DNL), the document states that "undue interference with activity and annoyance" will not occur if outdoor noise levels in residential areas are below 55 dBA L_{dn} and indoor levels are below 45 dBA L_{dn} (EPA, 1974).

Department of Housing and Urban Development (HUD)

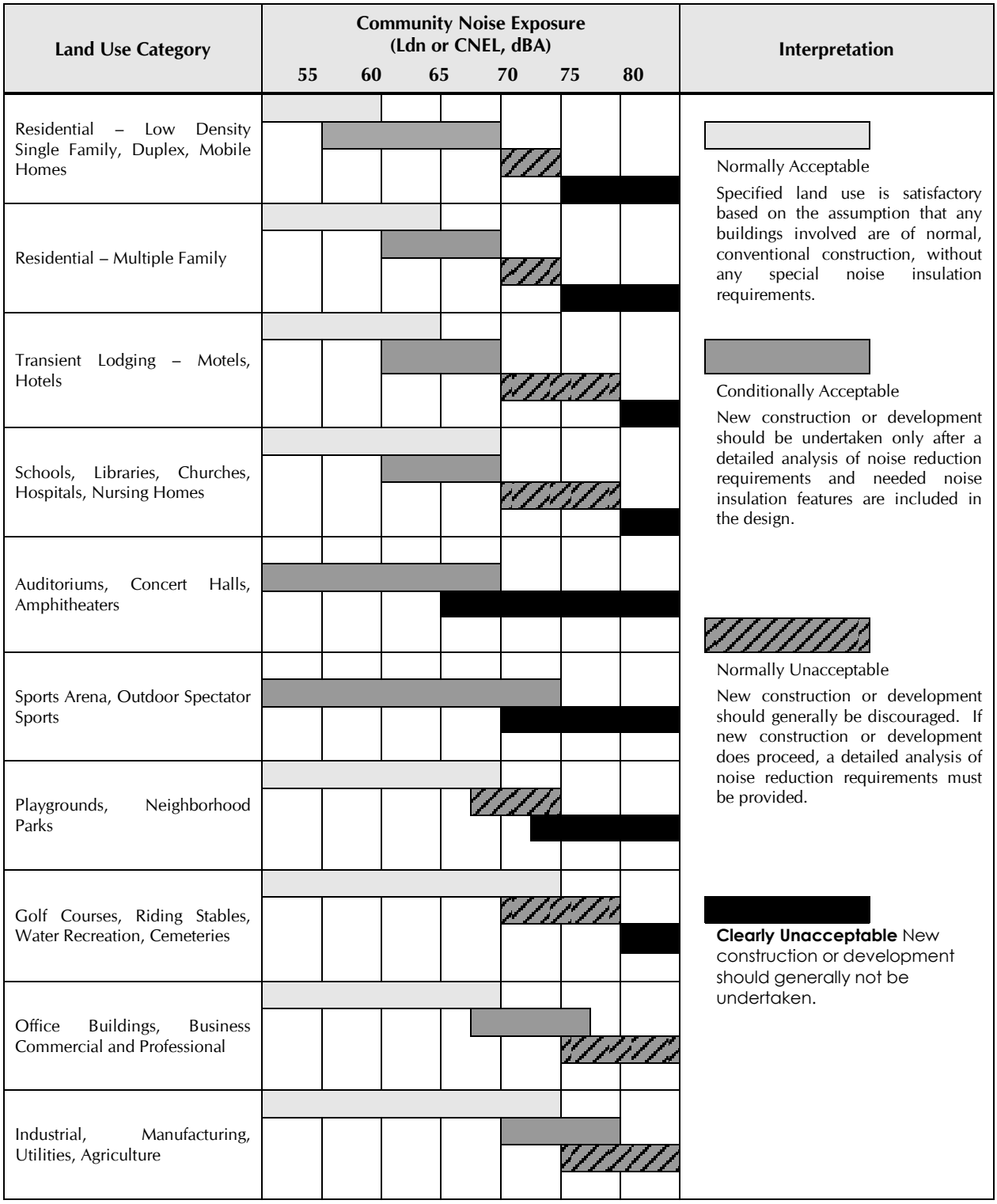
The Federal Department of Housing and Urban Development (HUD) guidelines for the acceptability of residential land uses are set forth in the Code of Federal Regulations, Title 24, Part 51, "Environmental Criteria and Standards." These guidelines identify a noise exposure of 65 dBA L_{dn} or less as acceptable. Noise levels of 65 to 75 dBA L_{dn} are considered normally acceptable, provided appropriate sound attenuation is provided to reduce interior noise levels to within acceptable levels. Noise levels above 75 dBA L_{dn} are considered unacceptable. The goal of the interior noise levels is 45 dBA L_{dn}. These guidelines apply only to new construction supported by HUD grants and are not binding upon local communities (Caltrans, 2002).

STATE

The State of California regulates transportation noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The *State of California General Plan Guidelines* (State of California 1998), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific L_{dn}/CNEL noise exposure contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. **Table 4.9-5** summarizes the acceptable and unacceptable community noise exposure limits for various land use categories, as currently defined by the State of California.

Title 24 of the California Code of Regulations establishes standards governing interior noise levels that apply to all new multi-family residential units in California. These standards require that acoustical studies be performed prior to construction at building locations where the existing L_{dn}/CNEL exceeds 60 dBA. Such acoustical studies are required to establish mitigation measures that will limit interior noise levels to 45 dBA CNEL.

TABLE 4.9-5
COMMUNITY NOISE MEASUREMENT SURVEY RESULTS
STATE OF CALIFORNIA



Source: Bollard Acoustical Consultants, Inc., 2009

California Building Code

Title 24 of the California Code of Regulations contains standards for allowable interior noise levels associated with exterior noise sources (California Building Code, 1998 edition, Volume 1, Appendix Chapter 12, Section 1208A). The standards apply to new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family residences. The standards state that the interior noise level attributable to exterior sources shall not exceed 45 dBA in any habitable room. Proposed residential structures to be located where the annual L_{dn} or CNEL exceeds 60 dBA require an acoustical analysis showing that the proposed building design would achieve the prescribed allowable interior noise standard. The noise metric is either the day-night average sound level (L_{dn}) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan. Worst-case noise levels, either existing or future, are used as the basis for determining compliance with these standards (Caltrans, 2002).

LOCAL

Orland General Plan

The City of Orland General Plan is used to guide future development in the City. State law requires that all local governments prepare a general plan for future development in their jurisdictions. The City's current General Plan was adopted in 2003. The City of Orland General Plan of 2003 includes a number of policies and associated programs that relate to noise impacts. Key policies that relate to noise include Policy 6.1.A through Policy 6.1.K which ensure that the citizens of Orland are protected from the harmful effects of exposure to excessive noise.

For instance, the interior and exterior noise level standards for noise-sensitive areas of new uses affected by traffic or railroad noise sources in the City of Orland as established by proposed General Plan Policy 6.1.A are shown in **Table 4.9-6**, below.

TABLE 4.9-6
NOISE STANDARDS FOR NEW USES AFFECTED BY TRAFFIC AND RAILROAD NOISE

New Land Use	Outdoor Activity Areas L_{dn}	Interior –L_{dn}/Peak Hour L_{eq} (Note 1)	Notes
Residential	60-65	45	2, 3, 4
Transient Lodging	65	45	5
Hospitals, Nursing Homes	60	45	6
Theaters, Auditoriums, Music Halls	--	35	
Churches, Meeting Halls, Schools, Libraries, etc.	60	40	
Office Buildings,	65	45	7
Commercial Buildings	65	50	7
Playgrounds, Parks	70	--	
Industry	65	50	7

Notes:
1. *For traffic noise within the City of Orland, Ldn and peak-hour Leq values are estimated to be approximately similar. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in closed positions.*

2. *Outdoor activity areas for single-family residential uses are defined as back yards. For large parcels or residences with no clearly identified outdoor activity area, the standard shall be applicable within a 100-foot radius of the residence.*
3. *For multi-family residential uses, the exterior noise level standard shall be applied at the common outdoor recreation area, such as at pools, play areas, or tennis courts.*
4. *Where it is not possible to reduce noise in outdoor activity areas to 60 dB Ldn or less using a practical application of the best available noise-reduction measures, an exterior noise level of up to 65 dB Ldn may be allowed provided that available exterior noise reduction measures have been implemented and interior noise levels are in compliance with this table.*
5. *Outdoor activity areas of transient lodging facilities include swimming pools and picnic areas.*
6. *Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.*
7. *Only the exterior spaces of the uses designated for employee or customer relaxation have any degree of sensitivity to noise.*

Furthermore, the interior and exterior noise level standards for noise-sensitive areas of new uses affected by non-transportation noise sources in the City of Orland as established by proposed General Plan Policy 6.1.F are shown by **Table 4.9-7**, below.

TABLE 4.9-7
NOISE STANDARDS FOR NEW USES AFFECTED BY NON-TRANSPORTATION NOISE

New Land Use	Outdoor Activity Area – Leq		Interior – Leq	
	Daytime	Nighttime	Day & Night	Notes
All Residential	50	45	35	1, 2, 7
Transient Lodging	55	--	40	3
Hospitals, Nursing Homes	50	45	35	4
Theaters and Auditoriums	--	--	35	
Churches, Meeting Halls, Schools, Libraries, etc.	55	--	40	
Office Buildings	55	--	45	5, 6
Commercial Buildings	55	--	45	5, 6
Play-grounds, Parks, etc.	65	--	--	6
Industry	65	65	50	5

Notes:
1. *Outdoor activity areas for single-family residential uses are defined as back yards. For large parcels or residences with no clearly identified outdoor activity area, the standard shall be applicable within a 100-foot radius of the residence.*
2. *For multi-family residential uses, the exterior noise level standard shall be applied at the common outdoor recreation area, such as at pools, play areas, or tennis courts. Where such areas are not provided, the standards shall be applied at individual patios and balconies of the development.*
3. *Outdoor activity areas of transient lodging facilities include swimming pool and picnic areas, which are not commonly used during nighttime hours.*
4. *Hospitals are often noise-generating uses. The exterior noise levels standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.*
5. *Only the exterior spaces of those uses designated for employee or customer relaxation have any degree of sensitivity to noise.*
6. *The outdoor activity areas of office, commercial, and park uses are not typically utilized during nighttime hours.*
7. *It may not be possible to achieve compliance with this standard at residential uses located immediately adjacent to loading dock areas of commercial uses while trucks are unloading. The daytime and nighttime noise level standards applicable to loading docks shall be 55 and 50 dB Leq, respectively.*

4.9.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The standards of significance used to evaluate the noise impacts of the proposed General Plan are based on Appendix G of the CEQA Guidelines. Those guidelines state that implementation

of a project would result in significant noise impacts if the project would result in any of the following.

1) Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies.

2) Exposure of persons to, or generation of, excessive groundborne vibration or airborne noise levels.

3) A substantial permanent increase in ambient noise levels in the project vicinity above levels without the project.

4) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

5) 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, where the project would expose people residing or working in the area to excessive noise levels.

6) For a project within the vicinity of a private airstrip, where the project would expose people residing or working in the project area to excessive noise levels.

SPECIFIC THRESHOLDS FOR FINDINGS OF NOISE IMPACTS

The numeric standards described in **Tables 4.9-6** and **4.9-7** are used as the triggers for the finding of significant noise impacts associated with new development projects in Planning Area as a result of implementation of the proposed General Plan. In addition, a significant project-related noise impact is identified if the project would result in a substantial increase in noise levels, as noted in CEQA, Appendix G, items 3 and 4. The numeric level which is considered significant in terms of project-related noise level increases depends on the nature of the noise source which is creating the increase as well as the ambient noise environment in which the new noise is introduced. For changes in similar noise sources, such as a project which would increase traffic noise levels in an area where traffic currently defines the noise environment, a 3-5 dB increase is commonly considered the range of thresholds for a finding of significance. This is because a change of 3-5 dB in similar noise sources represents a perceptible to clearly noticeable change in ambient noise condition. If the new noise source is different from those which define the ambient noise conditions, a 3 dB increase is commonly considered to be significant, as the new noise source will likely be more noticeable due to its different character.

METHODOLOGY

Noise impacts are identified for new noise-sensitive developments located within areas impacted by existing or future traffic, rail, aircraft, industrial, or other significant noise sources. Noise impacts are also identified for noise-producing projects proposed near existing or future noise-sensitive areas. Finally, noise impacts are evaluated by comparing traffic noise generation of the traffic levels associated with the project on proposed General Plan roadways under cumulative buildout conditions relative to the existing condition. Each of these distinct impact categories are discussed separately below.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Adoption of New Goals, Policies and Programs

Impact 4.9.1 Implementation of the proposed General Plan would result in the adoption of the new goals, policies and programs designed to address noise. This would be considered a **less than significant** impact.

The noise-related policies of the proposed General Plan would remain the same as the current General Plan policies (2003). Since there are no proposed changes from the current noise-related policies, no noise impacts would result from their implementation. This impact would be considered **less than significant**.

Mitigation Measures

None required.

Future Noise-Sensitive Land Uses

Impact 4.9.2 Future development of noise-sensitive land uses within areas which are either currently impacted by noise or are in areas which may be impacted by noise in the future would result in **less than significant** noise impacts under the proposed General Plan.

New noise-sensitive uses developed in areas exposed to future noise levels exceeding the noise standards described above would be significantly impacted. **Table 4.9-8** provides predicted future traffic noise levels and distances to critical noise contours. So residential and other noise-sensitive uses proposed within those contours (primarily the 60 dB Ldn contour), or within the railroad noise contours shown in **Table 4.9-3**, would technically be noise impacted.

TABLE 4.9-8
SUMMARY OF FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL RESULTS
CITY OF ORLAND PROPOSED GENERAL PLAN – PROJECT-RELATED TRAFFIC NOISE INCREASES

Roadway	Segment	ADT	L_{dn} at 100 Feet	Distance to 70 dB L_{dn} (feet)	Distance to 65 dB L_{dn} (feet)	Distance to 60 dB L_{dn} (feet)
Almond Way	6th Street to 8th Street	1,025	51	5	11	23
Monterey Street	5th Street to 6th Street	1,425	52	6	14	29
6th Street	Trinity Street to Shasta Street	6,369	58	17	37	79
Tehama Street	5th Street to 6th Street	1,826	53	7	16	34
Shasta Street	Melanie Circle to Woodward Avenue	1,374	52	6	13	29
Newville Road	West of County Road HH	5,146	60	22	48	102
County Road HH	South of Newville Road	4,393	59	20	43	92
Tehama Street	Northeast of SR 32	1,830	56	11	24	51
5th Street	North of Walker Street (SR 32)	775	49	4	9	19

Roadway	Segment	ADT	L_{dn} at 100 Feet	Distance to 70 dB L_{dn} (feet)	Distance to 65 dB L_{dn} (feet)	Distance to 60 dB L_{dn} (feet)
5th Street	South of Walker Street (SR 32)	1,453	52	6	14	30
4th Street	North of Walker Street (SR 32)	1,244	51	6	12	27
4th Street	South of Walker Street (SR 32)	2,209	54	8	18	39
3rd Street	North of Walker Street (SR 32)	1,151	51	5	12	25
3rd Street	South of Walker Street (SR 32)	1,298	52	6	13	27
2nd Street	North of Walker Street (SR 32)	528	48	3	7	15
2nd Street	South of Walker Street (SR 32)	799	49	4	9	20
A Street	North of Walker Street (SR 32)	243	44	2	4	9
A Street	South of Walker Street (SR 32)	436	47	3	6	13
East Street	North of Walker Street (SR 32)	2,780	55	10	21	46
East Street	South of Walker Street (SR 32)	3,286	56	11	24	51
Woodward Avenue	North of Walker Street (SR 32)	2,265	54	9	18	40
County Road M ½	North of Walker Street (SR 32)	1,517	52	7	14	30
4th Street	Mill Street to Yolo Street	1,402	52	6	13	29
Yolo Street	West of Papst Avenue	1,222	51	6	12	26
County Road 16	West of County Road HH	1,726	53	7	15	33
Cortina Drive	North of South Street	1,683	53	7	15	33
8th Street	North of South Street	1,529	52	7	14	31
6th Street	North of South Street	5,542	58	16	34	72
6th Street	South of South Street	4,612	60	21	44	95
Railroad Avenue	North of South Street	2,043	54	8	17	37
East Street	North of South Street	2,477	54	9	20	42
South Street	West of Papst Avenue	4,080	57	13	27	59
Pabst Avenue	South of South Street	1,326	54	9	19	41
South Street	West of County Road N	1,717	55	9	19	49
County Road N	North of South Street	916	50	5	10	22
SR 32 (Walker Street)	East of Interstate 5	17,756	63	34	73	157
SR 32 (Walker Street)	East of 6th Avenue	22,626	64	40	86	185
SR 32 (Walker Street)	East of Papst Avenue	20,646	66	56	120	259

Roadway	Segment	ADT	L_{dn} at 100 Feet	Distance to 70 dB L_{dn} (feet)	Distance to 65 dB L_{dn} (feet)	Distance to 60 dB L_{dn} (feet)
SR 32 (Walker Street)	East of County Road N	17,024	68	69	148	318

Source: Bollard Acoustical Consultants, Inc., 2009

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Noise: Policy 6.1.A, Policy 6.1.B, Policy 6.1.D, Policy 6.1.E, Policy 6.1.F, Policy 6.1.G, Policy 6.1.H

Policy 6.1.A and Policy 6.1.F identify interior and exterior noise level standards for noise-sensitive areas of new uses affected by traffic or railroad noise sources as well as non-transportation noise sources in the City of Orland. These standards are shown in **Tables 4.9-6** and **4.9-7** above. Policies 6.1.B and 6.1.H state that where the noise level standards for **Tables 4.9-6** and **4.9-7** above (Table 6-3 and 6-5 in the proposed General Plan) are predicted to be exceeded at new uses proposed within the City of Orland which are affected by traffic or railroad noise and/or are affected by or include non-transportation noise sources, appropriate noise mitigation measures and/or conditions of approval shall be included in the project design to reduce projected noise levels to a state of compliance with the standards identified in **Tables 4.9-6** and **4.9-7** above (Table 6-3 and 6-5 in the proposed General Plan).

Policy 6.1.D states that if future railroad operations occur during nighttime hours (10 p.m. to 7 a.m.), then proposals for the development of new residential uses within 1,000 feet of railroad grade crossings should address noise impacts in terms of the potential for sleep disturbance. Policy 6.1.E states that if an acoustical analysis is required by the City to assess compliance with the City's Noise Element standards, it shall be prepared in accordance with Table 6-4 of the proposed General Plan, *Requirements for Acoustical Analyses Prepared in Orland*. This table identifies noise analysis standards such as the requirement that all noise analyses include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions as well as the need for all noise analyses to be prepared by qualified persons experienced in the fields of environmental noise assessment and architectural acoustics.

Since the proposed General Plan Noise Element policies require that noise impacts be evaluated for development with appropriate noise mitigation measures and/or conditions of approval included in the project design, this impact would be **less than significant.**

Mitigation Measures

None required.

Noise-Producing Land Uses

Impact 4.9.3 Future development of noise-producing land uses near noise-sensitive land uses would result in **potentially significant** noise impacts under the proposed General Plan.

The implementation of the proposed General Plan would result in the creation of new land use designations and could result in development of noise-producing land uses near noise-sensitive land uses. Noise produced by new noise-producing projects constructed near existing noise-

sensitive areas could cause the City's noise standards to be exceeded, thereby resulting in significant impacts. The proposed General Plan addresses this potential impact by requiring that effective mitigation measures and/or conditions of approval are incorporated into the project design consistent with adopted noise standards.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Noise: Policy 6.1.E, Policy 6.1.F, Policy 6.1.G, Policy 6.1.H

Policy 6.1.F identifies interior and exterior noise level standards for non-transportation noise sources in the City of Orland. These standards are shown in **Table 4.9-7** above. Policies 6.1.H states that where the noise level standards for **Table 4.9-7** (Table 6-5 in the proposed General Plan) are predicted to be exceeded at new uses proposed within the City of Orland which are affected by or include non-transportation noise sources, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with the standards identified in **Tables 4.9-7** (Table 6-5 in the proposed General Plan).

Policy 6.1.E states that if an acoustical analysis is required by the City to assess compliance with the City's Noise Element standards, it shall be prepared in accordance with Table 6-4 of the proposed General Plan, *Requirements for Acoustical Analyses Prepared in Orland*. This table identifies noise analysis standards such as the requirement that all noise analyses include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions as well as the need for all noise analyses to be prepared by qualified persons experienced in the fields of environmental noise assessment and architectural acoustics.

As the policies of the proposed General Plan Noise Element require that noise impacts be evaluated in the case of new noise-producing developments constructed near existing noise-sensitive land uses and appropriate noise mitigation measures and/or conditions of approval shall be included in the project design of such development, this impact would be **less than significant**.

Mitigation Measures

None required.

Current Noise-Sensitive Land Uses

Impact 4.9.4 Implementation of the proposed General Plan would result in significant increases in traffic noise levels at existing noise-sensitive areas within Orland. This is considered a **significant** impact.

Implementation of the proposed General Plan would result in greater traffic volumes on City roadways than exist today. The greater traffic volumes would result in increased traffic noise on City roadways, as indicated in **Table 4.9-9** below. Specifically, changes in traffic noise levels generally ranging from an increase of 0-6 dB relative to the existing levels can be expected. Because a traffic noise level increase of 1.5 dB to 5 dB L_{dn} is commonly considered the threshold of significance, depending on the existing levels without the project, the project thresholds of significance would be exceeded. As a result, this impact is considered to be potentially significant.

TABLE 4.9-9
SUMMARY OF FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION ANALYSIS
CITY OF ORLAND PROPOSED GENERAL PLAN EIR – 2028 CONDITIONS

Roadway	Segment	Predicted Ldn at 100 Feet		
		Existing	Buildout	Difference (dB)
Almond Way	6th Street to 8th Street	51	51	0
Monterey Street	5th Street to 6th Street	52	52	0
6th Street	Trinity Street to Shasta Street	58	58	0
Tehama Street	5th Street to 6th Street	52	53	1
Shasta Street	Melanie Circle to Woodward Avenue	49	52	3
Newville Road	West of County Road HH	60	60	0
County Road HH	South of Newville Road	53	59	6
Tehama Street	Northeast of SR 32	55	56	1
5th Street	North of Walker Street (SR 32)	49	49	0
5th Street	South of Walker Street (SR 32)	52	52	0
4th Street	North of Walker Street (SR 32)	51	51	0
4th Street	South of Walker Street (SR 32)	54	54	0
3rd Street	North of Walker Street (SR 32)	51	51	0
3rd Street	South of Walker Street (SR 32)	51	52	1
2nd Street	North of Walker Street (SR 32)	47	48	1
2nd Street	South of Walker Street (SR 32)	49	49	0
A Street	North of Walker Street (SR 32)	44	44	0
A Street	South of Walker Street (SR 32)	47	47	0
East Street	North of Walker Street (SR 32)	54	55	1
East Street	South of Walker Street (SR 32)	55	56	1
Woodward Avenue	North of Walker Street (SR 32)	53	54	1
County Road M ½	North of Walker Street (SR 32)	50	52	2
4th Street	Mill Street to Yolo Street	52	52	0
Yolo Street	West of Papst Avenue	51	51	0
County Road 16	West of County Road HH	51	53	2
Cortina Drive	North of South Street	49	53	4
8th Street	North of South Street	51	52	1
6th Street	North of South Street	58	58	0
6th Street	South of South Street	60	60	0
Railroad Avenue	North of South Street	53	54	1
East Street	North of South Street	54	54	0
South Street	West of Papst Avenue	53	57	4

Roadway	Segment	Predicted Ldn at 100 Feet		
		Existing	Buildout	Difference (dB)
Pabst Avenue	South of South Street	54	54	0
South Street	West of County Road N	53	55	2
County Road N	North of South Street	44	50	6
SR 32 (Walker Street)	East of Interstate 5	58	63	5
SR 32 (Walker Street)	East of 6th Avenue	61	64	3
SR 32 (Walker Street)	East of Papst Avenue	62	66	4
SR 32 (Walker Street)	East of County Road N	64	68	4

Source: Bollard Acoustical Consultants, Inc., 2009

Mitigation Measures

MM 4.9.4 The following mitigation measure shall be added as a new policy under Goal 6.1 of the proposed General Plan:

The City shall continue to implement the noise reducing standards and regulations of the Zoning Ordinance to reduce traffic and other noise levels Citywide. Noise reduction shall include, but shall not be limited to, the following reduction measures for noise abatement consideration where reasonable and feasible.

- Noise barrier retrofits
- Truck usage restrictions in residential areas
- Reduction of speed limits
- Use of quieter paving materials
- Building façade sound insulation
- Traffic calming
- Additional enforcement of speed limits and exhaust noise laws
- Signal timing

It is recognized that the proposed General Plan policies identified under Impacts 4.9.2 and 4.9.3 as well as mitigation measure **MM 4.9.4**, used individually or collectively, can result in a reduction of traffic noise levels at affected sensitive receptor locations. Nonetheless, despite the implementation of such a noise abatement program, it is infeasible to ensure that existing residential uses will not be exposed to future traffic noise levels exceeding the City's noise standards or significantly exceeding levels they are exposed to today. For example, it may not be possible to construct a noise barrier at an existing residence due to engineering constraints (utility easements or driveway openings), and building façade sound insulation would only benefit interior spaces, so outdoor activity areas may still be affected. It may also be infeasible to reduce speed limits in areas where speed surveys would not safely support the reduction. In addition, busy streets tend to also serve commercial uses, so restricting trucks on the busier streets may be impractical. Although a combination of the listed measures could be highly effective in reducing traffic noise levels on a Citywide basis, it is not possible to state with absolute certainty that it would be possible to mitigate this impact at every noise-sensitive use within the City. As a result, this impact would remain **significant and unavoidable**.

Aircraft Noise Impacts

Impact 4.9.5 Implementation of the proposed General Plan would not expose future land uses and residents to significant levels of aircraft related noise. This is considered a **less than significant** impact.

The City of Orland is separated from the Haigh Field Airport, which is operated by Glenn County, by a considerable distance. Although occasional aircraft over flights of the City occur, the City of Orland is located well beyond the noise impact zones of this airport, as illustrated by the noise contours contained within the Airport's Land Use Plan (Bollard Acoustical Consultants, Inc., 2009). As a result, the existing ambient noise environment of the City of Orland is not significantly influenced by aircraft noise. Therefore, this impact would be **less than significant.**

Mitigation Measures

None required.

4.9.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative noise setting takes into account existing development within the Planning Area, planned development under the existing General Plan, potential future development within the City's Planning Area, and buildout of the proposed General Plan. Development in the region would increase housing, employment, and shopping and recreational opportunities, which would in turn result in new noise generators and noise-sensitive receivers.

The following accounts for regional traffic conditions under the project buildout and operations by existing and future commercial/industrial uses (stationary sources) in the Planning Area. The future (cumulative) ambient noise environment would be affected by buildout of the proposed General Plan and planned development in surrounding communities.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Increase of Ambient Traffic Noise Levels

Impact 4.9.6 Implementation of the proposed General Plan would result in significant increases in noise levels within Orland. This is considered a **cumulatively considerable** impact.

Buildout of the City Planning Area under the proposed General Plan would result in greater traffic volumes on City roadways than exist today and would result in a substantial increase in traffic noise.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed General Plan contains policies and programs which include mitigation requirement that contain specific performance standards addressing traffic noise. These policies are listed under Impact 4.9.2.

It is recognized that the proposed General Plan policies identified under Impacts 4.9.2 as well as mitigation measure **MM 4.9.4**, used individually or collectively, can result in a reduction of traffic noise levels at affected sensitive receptor locations. Nonetheless, despite the implementation of such a noise abatement program, it is infeasible to ensure that existing residential uses will not be exposed to future traffic noise levels exceeding the City's noise standards or significantly exceeding levels they are exposed to today. For example, it may not be possible to construct a noise barrier at an existing residence due to engineering constraints (utility easements or driveway openings), and building façade sound insulation would only benefit interior spaces, so outdoor activity areas may still be affected. It may also be infeasible to reduce speed limits in areas where speed surveys would not safely support the reduction. In addition, busy streets tend to also serve commercial uses, so restricting trucks on the busier streets may be impractical. Although a combination of the listed measures could be highly effective in reducing traffic noise levels, it is not possible to state with absolute certainty that it would be possible to mitigate this impact at every noise-sensitive use within the Planning Area. As a result, this impact would remain **cumulatively considerable** and thus **significant and unavoidable**.

REFERENCES

Bollard Acoustical Consultants, Inc. 2009. *City of Orland Noise Study.* August 2009.

California Department of Transportation (Caltrans). 1996. *1997 Route Segment Report*.

California Department of Transportation (Caltrans). 2002. *California Airport Land Use Planning Handbook*.

City of Orland, 2008. *City of Orland Background Report*. January 2008, Orland, Ca.

U.S. Environmental Protection Agency (EPA). March 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*.

4.10 POPULATION AND HOUSING

This section analyzes the potential population and housing impacts of the proposed General Plan. This section includes a discussion of the population and housing characteristics within the proposed Planning Area. Key issues addressed in this section include population and housing growth and jobs-housing balance. Information for this section came from public databases and documents, particularly the City of Orland Housing Element.

4.10.1 EXISTING SETTING

LOCAL SETTING

The City of Orland Planning Area contains approximately 6.42 square miles of land area in eastern Glenn County.

Urban land uses in the proposed Planning Area generally consist of residential, commercial, office, recreational, and public uses within and adjacent to the City of Orland. Residential, industrial, and agricultural uses occur outside of the City. The existing City of Orland General Plan and Zoning Code currently guide the land uses in the City, while the Glenn County General Plan and Zoning Ordinance apply to areas outside the city limits. Refer to Section 4.8, Land Use, for a more detailed description of land uses and applicable land use plans in the proposed Planning Area. Refer to Section 4.0, Introduction to the Environmental Analysis and Assumptions Used, for a discussion of buildout projections under the adopted General Plan.

POPULATION

Table 4.10-1 shows population trends in the City of Orland. The City experienced a 24.3 percent growth in population between the 1990 and 2000 U.S. Census, increasing from 5,052 to 6,281. Between 2000 and 2008, the population in Orland increased from 6,281 to 7,353, a growth of 17.1 percent.

TABLE 4.10-1
POPULATION OF ORLAND AND GLENN COUNTY, 1990–2008

Year	City of Orland		Glenn County	
	Population	% Change	Population	% Change
1990	5,052	-	24,798	-
1991	5,175	2.4%	25,200	1.6%
1992	5,350	3.4%	25,650	1.8%
1993	5,400	0.9%	25,900	1.0%
1994	5,475	1.4%	26,100	0.8%
1995	5,600	2.3%	26,350	1.0%
1996	5,650	0.9%	26,650	1.1%
1997	5,675	1.4%	26,800	0.6%
1998	5,750	1.3%	26,850	0.2%
1999	5,775	0.4%	26,850	0.0%
2000	6,281	8.8%	26,453	-1.5%
2001	6,343	1.0%	26,719	1.0%

Year	City of Orland		Glenn County	
2002	6,379	0.6%	26,996	1.0%
2003	6,465	1.3%	27,424	1.6%
2004	6,544	1.2%	27,859	1.6%
2005	6,692	2.3%	28,271	1.5%
2006	6,992	4.5%	28,651	1.3%
2007	7,189	2.8%	28,915	0.9%
2008	7,353	2.2%	29,195	0.9%

Sources: DOF, 2008; 2000 U.S. Census
1990 and 2000 figures from U.S. Bureau of the Census

As the 2000 U.S. Census figures indicate, the population of Orland grew significantly during the 1990s, exceeding the California Department of Finance (DOF) estimated 2000 population of 5,875. This accounts for the large increase in the growth rate for 2000. While City population growth has increased every year for the past 20 years, there have been significant fluctuations in the growth rate from year to year.

Glenn County population growth in the 1990s was slower than that projected by DOF, which had estimated a 2000 population of 27,100. This accounts for the apparent decrease in Glenn County population in 2000 and does not necessarily mean a population decline occurred in the county. Over the past 20 years, population in the county has grown more slowly than that of Orland but at a steadier rate. From 1990 to 2000, the population of the City increased by 24.3 percent, an average annual increase of 2.2 percent. By comparison, the population of Glenn County increased by just 6.7 percent during the same time period. Between 2000 and 2005 the City of Orland and Glenn County grew by an average of 1.3 percent and 1.4 percent, respectively.

HOUSING

Household Trends

According to the 2000 Census, 2,226 households were established in the City of Orland. As of 2006, the average household size for Orland was 2.917 persons per household, versus 2.903 persons per household for Glenn County and 2.938 for California. **Table 4.10-2** displays the household size, number of households, and percentage of each household size within the City. More than half of the households in the City (52.3 percent) have one or two persons, which is less than the percentage of one- or two-person households in the state (53.2 percent). Slightly over 8 percent of City households have six or more persons, compared with 7.9 percent in the state.

TABLE 4.10-2
CITY OF ORLAND HOUSEHOLD SIZE (2000)

Household Size	Number	Percentage
1 person	519	23.3
2 persons	643	28.9
3 persons	379	17.0
4 persons	328	14.8
5 persons	177	7.9
6 persons	118	5.3
7+ persons	62	2.8
Total	**2,226**	**100.0**
Average Household Size (2008)		2.918

Source: 2000 U.S. Census; DOF, 2008

Household Income

Household incomes for Orland in 2000 were lower compared to those for Glenn County. According to the 2000 U.S. Census, the household median income for Orland was $27,973. By comparison, the median income in Glenn County was $32,107. Both median household incomes were lower than that for the state overall, which was $48,451. However, median incomes are not necessarily indicative of the standard of living in an area. It is possible for a region to have a high standard of living but a low median household income. This could be due to a favorable environment or lower cost of living expenses, which can increase the quality of life (Center for Economic Development, 2001).

Another indicator of the economic status of a population is the poverty rate. According to the 2000 U.S. Census, the poverty rate in Orland was 19.0 percent. This is above the poverty rate for Glenn County, which was 18.1 percent, and above the statewide rate of 14.2 percent.

Housing Stock

The City prepared the Housing Element of its General Plan in 2009 and adopted it in early 2010. The previous Housing Element was prepared in 2003 and adopted in 2004. The Housing Element describes housing needs and sets forth goals and implementation measures intended to address housing needs in a manner consistent with the overall economic and social values of the City, while achieving the state goal of accommodating the housing needs of Californians at all economic levels. It provides a framework for achieving these goals in a timely and orderly manner. The Housing Element is the City's official response to the findings by the State Legislature that availability of decent housing and a suitable living environment for every Californian is a high priority. By identifying local housing needs, adopting appropriate goals and policies, and providing local legislation and programs to meet these needs, City government may be more effective in dealing with the housing needs of its residents.

The Housing Element relied heavily upon 2000 U.S. Census data. Other housing information was found on the DOF website, and it is used in the discussion that follows.

Table 4.10-3 provides data on housing units and occupancy in Orland for 2000 and 2008. The percentage of vacant units in Orland increased slightly from 4.7 percent in 2000 to 5.1 percent in 2008. This could be accounted for in the large increase (14 percent) in the overall number of housing units available. A notable change is the average number of persons per household, which increased from 2.86 in 2000 to 2.92 in 2008. One possible factor in this change could be an increase in the number of households with families.

TABLE 4.10-3
COMPARISON OF GENERAL DATA RELATED TO ORLAND POPULATION, VACANCY RATES, AND PERSONS PER HOUSEHOLD (2000 AND 2008)

	2000	2008	% Change
Total Population	**6,281**	**7,353**	**17**
Group Quarters	24	38	58
Households	6,257	7,315	17
Total Housing Units	**2,309**	**2,643**	**14**
Occupied	2,190	2,507	14
Vacant[1]	109	136	25
% Vacant	4.7	5.1	9
Persons Per Household	2.86	2.92	2

1 Excludes units for seasonal, recreational, or occasional use.
Source: DOF, 2008

Housing Units

Total housing units are the total number of single-family and multiple-family dwellings located within a given jurisdiction. According to DOF, there were 2,643 housing units in Orland in 2008. This is an increase of 334 units from 2000, an increase of approximately 15 percent or an average increase of approximately 42 units per year. **Table 4.10-4** compares housing units by dwelling type between 2000 and 2008. In general, while the total number of housing units significantly increased, the composition of housing unit types remained similar between 2000 and 2008. Significant increases in duplex and townhouse units have occurred, while the number of single-family residences has kept up with population growth. The number of mobile homes and trailers dropped significantly in the comparison period. The annexation of Butte Mobile Home Park increased the number of mobile homes in the City.

In July 2009, the City or Orland conducted a housing condition survey, completed by mercy Housing. The survey indicated that 916 housing units (43%) out of the total of 2,129 were substandard. 'Substandard' covers a variety of conditions ranging from needeing minor rehabilitation to dilapidated. Five hundred and forty six (25.6%) of the units classified as substandard were in need of minor rehabilitation.

TABLE 4.10-4
COMPARISON OF HOUSING UNITS IN ORLAND, 2000 AND 2008

Dwelling Type	2000		2008		Change 2000–2008
	Units	% of Total	Units	% of Total	
Single-family, detached	1,676	73%	1,932	73%	+15%
Single-family, attached	42	2%	59	2%	+40%
Multi-family, 2 to 4 units	301	13%	384	15%	+28%
Multi-family, 5 or more units	199	9%	197	7%	-1%
Mobile homes, trailers	90	4%	71	3%	-21%
Total Housing Units Available	**2,308**	**100%**	**2,643**	**100%**	**+15%**

Note: Percentages may not add to 100.0 percent due to rounding
Source: DOF, 2008

Housing Vacancies

Vacancy trends in housing are analyzed using a "vacancy rate" which establishes the relationship between housing supply and demand. For example, if the demand for housing is greater than the available supply, then the vacancy rate is low and the price of housing will most likely increase. Additionally, the vacancy rate indicates whether or not the City has an adequate housing supply to provide choice and mobility. The Department of Housing and Urban Development standards indicate that a vacancy rate of 5 percent is sufficient to provide choice and mobility. The percentage of vacant units in Orland increased slightly from 4.7 percent in 2000 to 5.1 percent in 2008, as reported by DOF. However, the DOF estimate is for all housing unit types and does not exclude seasonal, recreational, or occasional use and all other vacant units, which is taken into account in the 2000 Census data.

As in other cities in California, satisfying the housing needs of its residents is an issue in Orland. Housing need consists of three major components: housing affordability, housing quality, and housing quantity. The Housing Element states that existing housing stock in Orland consists predominantly of low- and moderate-income housing. Recent data on home values are not available. However, the low vacancy rate mentioned earlier is indicative of a situation in which the housing supply is limited. This situation encourages an increase in prices for residences, which would make it more difficult for low- and moderate-income families in Orland to afford to buy a home.

The situation concerning rental housing is less clear. On the one hand, the vacancy rate in Orland is indicative of a "normal" condition. Also, duplex and townhouse units that could be rented at affordable rates have been built in the City over the past ten years. On the other hand, no multi-family residences of five or more units have been built in Orland over the past ten years, although applications for the development of multi-family units are currently being processed by the City. Also, the City could be attracting renters from Chico, where the rental market is tight. It is probable that rental rates have increased in Orland during the 2000s, which would make it harder for low- and moderate-income families to afford decent and uncrowded housing.

EMPLOYMENT

Data from the California Employment Development Department indicate that the City had a labor force of 3,000 people in 2008, of which 2,700 were employed. The unemployment rate in the City was 10.3 percent in 2008. This was higher than the statewide unemployment rate of 7.6 percent but lower than the 10.8 percent unemployment rate in Glenn County.

According to the 2000 U.S. Census, the largest single employment sector in the City was educational, health, and social services (**Table 4.10-5**). Manufacturing accounted for 14.8 percent of employed persons, the second largest share. Agricultural, forestry, and mining was next at 14 percent.

TABLE 4.10-5
CITY OF ORLAND EMPLOYMENT BY INDUSTRY (2000)

Sector	Persons Employed	
	Number	Percentage
Agriculture, Forestry, and Mining	336	14.0
Construction	87	3.6
Manufacturing	357	14.8
Wholesale Trade	74	3.1
Retail Trade	293	12.2
Transportation, Warehousing, and Utilities	171	7.1
Information	77	3.2
Finance, Insurance, Real Estate	124	5.1
Professional, Management, and Administrative	118	4.9
Educational, Health, and Social Services	416	17.3
Arts, Recreation, Accommodation, and Food Services	105	4.4
Other Services	149	6.2
Public Administration	101	4.2
Total	**2,408**	**100.0**

Percentages do not add to 100.0 percent due to rounding.
Source: 2000 U.S. Census

4.10.2 REGULATORY FRAMEWORK

CITY OF ORLAND GENERAL PLAN

The Orland General Plan is currently undergoing an update. City General Plan policies and programs apply to development within the Orland General Plan Planning Area. The Land Use and Housing Elements within the proposed General Plan include policies and programs relevant to population and housing impacts within the City. However, none of the policies relate specifically to population growth or displacement of housing or persons.

Housing Element

The City of Orland Housing Element was adopted in 2010 and is one of the seven required General Plan Elements of the Orland General Plan. State housing element law requires a housing element update every five years and, as such, the Housing Element is on a different update schedule than the other General Plan elements. Environmental review of the Housing Element will be completed as a separate review and is not a part of this proposed General Plan Draft Environmental Impact Report (DEIR).

The Housing Element is used as the "blueprint" to guide future housing development in the City. Under state law, the Housing Element and all other elements in the proposed General Plan must be consistent with each other. The proposed General Plan does not conflict with goals and policies identified in the adopted Housing Element, but enhances Housing Element goals for the provision of adequate housing by providing more areas of residential lands and mixed use through the redesignation of lands to allow for residential uses.

4.10.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

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

1) Substantial growth or concentration of population in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure) that results in a physical effect on the environment.

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

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

METHODOLOGY

City staff conducted research on demographic and housing conditions, utilizing existing documents and other information sources. Information was also obtained from governmental agencies through their websites. Among these agencies were the U.S. Bureau of the Census, the California Department of Finance, and the California Employment Development Department. The adopted City of Orland Housing Element was an additional source of information on housing and socioeconomic conditions as well as on housing policies.

Growth-inducing impacts are addressed in Other Sections Required by CEQA (Section 7.0) of this DEIR.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Population and Housing Increase

Impact 4.10.1 Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the Planning Area. This is a **significant** impact.

When considering the potential impacts a project may have on the physical environment, the existing conditions must be compared to the expected outcome the project may produce and the potential environmental impacts this change may cause. The projected increase in proposed General Plan Planning Area population and housing units would result in direct and indirect environmental effects such as noise, demand for services and utilities, traffic, and air quality. These effects associated with buildout of the proposed General Plan are discussed in the relevant chapters of this DEIR. The following is a discussion of implementation of the proposed General Plan and its potential to induce substantial growth. (Note: Section 4.0, Introduction to the Environmental Analysis and Assumptions Used, includes a detailed discussion of population and housing projections used in this DEIR.)

While the proposed General Plan could, theoretically, allow the buildout of 16,419 housing units with a population of 46,513 in the City (see **Tables 4.0-1** and **4.10-7**), the historical growth trends of the City suggest that this extent of growth will not happen during the 2028 planning horizon of the proposed General Plan, even if there is theoretically enough land designated in the proposed General Plan to accommodate this level of growth.

In order to anticipate the number of housing units and population in Orland in the year 2028, three growth rates were used to develop estimates. The "High" growth rate is a 2.6 percent average annual growth rate, which was the growth rate of the City's population from 1970 to 2000. The "Medium" rate is a 2.2 percent average growth rate, which was the growth rate of the City's population from 1990 to 2000, the most recent years. The "Low" growth rate is a 1.8 percent average annual growth rate. This was an arbitrarily selected rate, which was obtained by subtracting the Medium rate from the High rate, then subtracting the difference from the Medium rate. See **Table 4.10-6** for projected growth estimates.

TABLE 4.10-6
PROPOSED GENERAL PLAN 2028 PROJECTED GROWTH

	2008	2028 Projected High (2.6%)	2028 Projected Medium (2.2%)	2028 Projected Low (1.8%)
Residential Units	2,643	4,433	4,084	3,761
Population	7,353	12,286	11,363	10,506

The 2028 projected growth scenario represents substantial growth in the area and will have a potentially significant physical effect on the environment. Implementation of the proposed General Plan and the associated land use designations would directly cause growth. Therefore, this is considered a significant impact.

The proposed General Plan will result in land uses that promote an increase in the population of the area and does not contain any policies which would limit population growth. The only mitigation to reduce population and housing unit increases to a less than significant level would be a cessation of housing construction in the City, which is contradictory to the objectives of the proposed General Plan and therefore considered infeasible mitigation. Because this mitigation is

not feasible, the implementation of the proposed General Plan will result in a **significant and unavoidable** impact.

Mitigation Measures

None feasible.

Displacement of a Substantial Number of Persons or Housing

Impact 4.10.2 Implementation of the proposed General Plan may result in the displacement of housing and/or persons due to the construction of infrastructure necessary to serve new development or revitalization efforts. This is considered a **less than significant** impact**.**

While implementation of the proposed General Plan does not, in and of itself, provide for the construction of any new development, it would change land use designations in areas, thereby allowing future growth that may require additional and/or enlargement of infrastructure such as roadways and pipelines.

Displacement of population would only occur in limited situations where dilapidated housing may be removed. In July 2009, the City or Orland conducted a housing condition survey, completed by Mercy Housing (City of Orland, 2009). The survey indicated that 916 housing units (43%) out of the total of 2,129 were substandard. 'Substandard' covers a variety of conditions ranging from needing minor rehabilitation to dilapidated. Five hundred and forty six (25.6%) of the units classified as substandard were in need of minor rehabilitation. Relatively few persons would likely be removed and relocated, and the lost housing units most likely would be replaced.

The 2009 Housing Element contains policies designed to encourage the use of housing assistance programs to provide more affordable housing, accommodating and encouraging development of a full range of housing types, maintaining a sufficient inventory of developable land, encouraging both private and public efforts to rehabilitate and improve existing housing stock, and facilitating conservation or replacement of federally assisted housing units that will convert to market-rate housing.

Implementation of the proposed General Plan would not displace substantial numbers of housing units or people as the majority of land which may be developed in the future has very little or no housing on it presently. State and federal law require due compensation for persons required to relocate as a result of redevelopment projects carried out by the City or any projects that use federal or state funding. Any private development that may occur would pay the fair market price for any land/housing acquired as a result of project development. Therefore, although displacement of persons or housing may result, due compensation offsets any cost related effects.

Therefore, impacts related to a substantial displacement of housing units or people as a result of implementation of the proposed General Plan are **less than significant**.

Mitigation Measures

None required.

4.10.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for population and housing includes existing, approved, proposed, and reasonably foreseeable developments in both the Planning Area and Glenn County. Glenn County has two incorporated areas: Orland and Willows. It also has several unincorporated communities, which include Afton, Artois, Butte City, Elk Creek, and Hamilton City, among others. Additionally, the projects in Glenn County, Tehama County, Butte County, and Colusa County would contribute to cumulative population and housing conditions. **Table 4.10-7** provides a summary of regional growth projections that encompasses areas that would be directly and indirectly impacted by implementation of the proposed General Plan.

TABLE 4.10-7
REGIONAL GROWTH PROJECTIONS FOR THE YEAR 2030

Jurisdiction	Projected 2030 Population
Glenn County	45,181
Butte County	334,842
Colusa County	34,448
Tehama County	62,419

Source: DOF, 2008

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Population and Housing Growth

Impact 4.10.3 Implementation of the proposed General Plan, in addition to existing, proposed, approved, and reasonably foreseeable development in the area, could result in a cumulative increase in population and housing growth in the City and associated environmental impacts. This is a **cumulatively considerable** impact.

According to 2008 DOF estimates, there were 2,643 housing units in the City of Orland. Implementation of the proposed General Plan could potentially result in the theoretical construction of approximately 13,776 new residential dwelling units in the Planning Area at buildout. See **Table 4.10-8** for buildout projections. However, buildout is defined as the development of land to its full potential or theoretical capacity as permitted under current or proposed planning or zoning designations. This buildout projection of new residential dwelling units is under theoretical optimum conditions, simply calculated by multiplying the number of acres by the number of units allowed per acre. The buildout does not take into account site-specific constraints, economic factors, market forces, and regulatory restrictions such as General Plan policies, City ordinances implementing the General Plan, and regulatory requirements imposed by state and federal agencies. Therefore, the theoretical maximum buildout potential does not reflect the actual number of dwelling units based on proposed General Plan land use densities.

While the buildout potential for the proposed General Plan land use designations would be approximately 16,419 dwelling units, it is unlikely that this potential will be met by the proposed

General Plan's planning horizon of 2028. This principle is exemplified by a review of the historical data and projected growth for the City, as described in Section 4.0. When compared with the DOF 2008 estimate of 2,643 housing units, there could potentially be a 13,776-unit increase in housing units at buildout. This information is summarized in **Table 4.10-8**.

TABLE 4.10-8
GENERAL PLAN PLANNING AREA

	Existing	Theoretical Buildout	Change	% Change
Residential Units	2,643	16,419	13,776	521%
Population	7,353	46,513	39,160	533%

As shown in **Table 4.10-8**, development under the proposed General Plan could potentially lead to a substantial increase in population and housing in the Planning Area under buildout conditions. In addition, **Table 4.10-7** provides a summary of regional growth projections that encompasses areas that would be directly and indirectly impacted by implementation of the proposed General Plan. The projects in these regions would create new residences and employment opportunities in the areas surrounding the City of Orland and contribute to the cumulative impacts on population and housing growth in the region. The environmental effects of the approved projects in the regions surrounding Orland have already been considered. The respective jurisdictions will evaluate the environmental effects of the proposed and reasonably foreseeable projects on population and housing growth as projects are processed. As the added population would require housing, this would also lead to a cumulatively considerable increase in housing stock, with the associated environmental impacts discussed under Impacts 4.10.1 and 4.10.2.

The DEIR contains mitigation measures where appropriate to reduce or eliminate potentially significant impacts associated with population growth in the City. While the proposed General Plan contains policies that would help offset the effects of population growth, there are no measures that would completely mitigate the environmental effects of population growth under cumulative conditions. Even with implementation of proposed General Plan policies and mitigation measures, environmental impacts would remain significant, as population growth will inevitably occur and housing and other services would need to be provided to accommodate this growth. The only mitigation to reduce the population and housing unit increase to a less than significant level would be a cessation of housing construction in the City. However, this is contradictory to the objectives of the proposed General Plan and considered infeasible mitigation. Therefore, impacts related to population growth would be **cumulatively considerable** and **significant and unavoidable**.

Mitigation Measures

None feasible.

REFERENCES

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Center for Economic Development, California State University, Chico. 2001. *Glenn County 2001 Economic and Demographic Profile*.

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4.11 Community Services

This section describes the community services available in the proposed Planning Area, including fire protection, emergency medical services, police protection, schools, and parks and recreation facilities. Each service includes descriptions of existing facilities, service standards, and potential impacts on each service resulting from implementation of the proposed General Plan. Key issues addressed in this section include increased demand for fire protection and emergency medical services, police protection services, impacts on schools, and increased use of and demand for parks and recreation facilities and services. Information for this section came from the Orland Background Report, interviews with the appropriate agencies, and from public documents.

4.11.1 FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

4.11.1.1 EXISTING SETTING

Fires can be significant hazards in developed areas. Even well-constructed buildings may suffer damage from fires started accidentally or intentionally. In addition, structures located adjacent to fields and wildlands may be vulnerable to fire events. In addition to property damage, fires pose a threat to human life.

Three types of fires have the potential for resulting in major losses in and around the City. These include fire or explosion at one of the local agricultural processing plants, major operational failure of the rail service or interstate that pass through Orland, and urban conflagration (multiple simultaneous structural fires).

The most likely fire threat within Orland would be a structural fire within a residence, business, or industrial use. There are no unique or significant fire hazards associated with the rural/urban interface between the City and surrounding open spaces. The threat of wildland fire is considered to be minimal based on land uses surrounding the City (riparian corridor and active agricultural uses).

CITY OF ORLAND FIRE DEPARTMENT

Fire protection services within Orland city boundaries are provided by the Orland Volunteer Fire Department. Fire protection outside of the city limits is provided by the Orland Rural Fire Protection District. Both of these fire protection services are staffed by the same volunteers.

Established in 1911, Orland's fire station is located at 810 Fifth Street. The Fire Department currently has an Insurance Services Office (ISO) rating of 4. The ISO rating is a measure of fire protection service, with ratings from 1 to 10, 1 being the best. This Orland Volunteer Fire Department rating was established in 2002. ISO ratings are generally calculated as follows:

10 percent – Communications
40 percent – Water Supply
50 percent – Fire Department
100 percent = ISO rating of one (1)

All hydrants within the city limits will deliver the maximum flow available; such availability depends on the water mains that supply the specific hydrants. There are over 300 hydrants in the City of Orland with an average flow of 700 gallons per minute (gpm). The City is currently responsible for checking the hydrants and conducting proper maintenance.

The Fire Department is currently staffed entirely by volunteer firefighters, ranging in age from 21 to 55. There are currently 40 active volunteers in the department. Training, equipment, and other funding is provided primarily by the City's General Fund. The Fire Department currently utilizes one chief's truck; one utility pickup truck; one rescue vehicle; four engines (one 1,250 gallons per minute (gpm), two 1,000 gpm, and one 500 gpm); one ladder truck (1,000 gpm); and one tank trailer (City of Orland Background Report, 2008).

The department provides services in the form of fire emergency response, medical emergency response, and disaster aid. The Fire Department service area is within the Orland city limits. The Orland Rural Fire Protection District is a separate department providing fire protection for the Orland Rural Fire District, which generally lies outside of the city limits and serves the unincorporated area of Glenn County.

In 2007, there were approximately 512 calls to the department. Of these calls, 370 were medically related. According to the Orland Fire Chief, the local ambulance district responds to approximately three calls per day, often outside of the city limits (City of Orland Background Report, 2008). These calls cause added impacts to the Fire Department, considering every medical call takes a minimum of one hour of response time to service.

Average response time for fire protection and emergency medical services within the City of Orland is 3 to 5 minutes for arrival at the station, approximately 1 minute to prepare and leave the station, and an additional 2 to 3 minutes to the actual call site. In the future, the addition of a satellite station could reduce these response times considerably to outlying areas of the City. The placement of an unstaffed satellite equipment facility in the eastern portion of the City could serve the purpose of reducing response times there (City of Orland Background Report, 2008).

EMERGENCY MEDICAL SERVICES

The Orland Volunteer Fire Department assumes the first response to all medical emergency calls in the City. In addition to fire emergency services, the department provides services in the form of medical emergency response and disaster aid. The department currently has two ambulances, with one staffed 24 hours per day. The majority of department volunteers are either EMT-trained or are trained First Responders. As previously noted, the Fire Department received 370 calls for emergency medical service in 2007. Currently, there is no hospital in Orland. The closest full-service hospital is Enloe Medical Center in Chico, which is located approximately 15 miles to the east. Additionally, the Glenn Medical Center is located 16 miles to the south of Orland in Willows, which is the county seat for Glenn County.

4.11.1.2 REGULATORY FRAMEWORK

STATE

Office of Emergency Services

The Governor's Office of Emergency Services (OES) coordinates overall state agency response to major disasters in support of local government. The office is responsible for assuring the state's readiness to respond to and recover from natural, manmade, and war-caused emergencies, and for assisting local governments in their emergency preparedness, response, and recovery efforts. OES is the "grantee" for federal disaster assistance, principally from the Federal Emergency Management Agency (FEMA). During the recovery phase of a disaster, OES helps

local governments assess damages and assists them with federal and state grant and loan applications to repair damaged public property.

The Orland Office of Emergency Services is located within the Orland Fire Department and handles all major emergencies within city limits. Such emergencies include major fire, flood, earthquake, major hazardous materials incidents, and acts of terrorism. The Fire Chief also serves as the Director of Emergency Services for the City. The Director works in conjunction with the Mayor, City Manager, and City Council, as well as other local, state, and federal agencies, to mitigate emergencies. The City utilizes an Emergency Operations Plan that is updated regularly to maintain current standards.

Certified Unified Program Agency

In 1993, California legislators passed Senate Bill (SB) 1082, creating the Certified Unified Program Agency (CUPA) system in order to simplify the process of regulating and managing hazardous materials and hazardous wastes. Rather than having numerous state and local agencies regulating a single business, SB 1082 consolidates the enforcement of several different environmental regulations under the administration of one local agency called a CUPA.

The CUPA is implemented at the local level by 84 government agencies certified by the Secretary of the California Environmental Protection Agency (Cal-EPA). These CUPAs have typically been established as a function of a local environmental health or fire department. Some CUPAs also have contractual agreements with one or more other local agencies, which implement one or more program elements under the oversight of the CUPA. In Glenn County, the CUPA for the area is the Glenn County Air Pollution Control District.

LOCAL

Existing Orland General Plan

The adopted City of Orland General Plan currently is used as the "blueprint" to guide future development within the city limits and those future annexations in unincorporated portions of the existing Planning Area. The proposed General Plan would establish policies and programs associated with fire protection and emergency medical services. Specific proposed policies and programs are discussed in the impact analyses below.

Glenn County General Plan

The Glenn County General Plan contains policies in its Public Safety Policy Element regarding fire protection. The following County General Plan policies are applicable to the unincorporated portions of the proposed Planning Area.

PSP-18 Evaluate the creation of urban area fire departments for the Willows and Orland areas which would serve both the developed areas and developing areas within established urban limit lines.

4.11.1.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, fire protection service impacts are considered to be significant if the following could result from the implementation of the proposed General Plan:

1) Substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection.

2) Expose people or structures to significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

METHODOLOGY

The primary sources of information for fire protection services in the Orland area were the Orland Fire Department, a majority of which are from the 2008 Background Report for the proposed General Plan. Other information came from research of public documents, including the Local Agency Formation Commission (LAFCo) 2005 Draft Municipal Services Review and website information.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Fire Protection and Emergency Medical Services

Impact 4.11.1.1 Implementation of the proposed General Plan would increase the demand for fire protection and emergency medical services. This is considered a **potentially significant** impact.

Development of the City of Orland under the proposed General Plan would result in an expansion of the city limits and Planning Area, and could potentially result in an increase of population, housing, and commercial and industrial uses. Expansion of the city limits would increase response times to locations farther from the existing fire station, reducing the effectiveness of the Fire Department's ability to provide services. Additionally, the proposed General Plan could potentially result in an additional 7,034,940 square feet[1] of commercial and industrial space and a 4,305-unit increase in residential units, which corresponds to a potential increase in population of 11,436 persons. The City of Orland Fire Department received 512 total calls for service in 2007 from a population of approximately 7,189. Assuming the same proportion between calls for service and population, the Fire Department would receive 814 calls for service in 2028 under the proposed General Plan. At its present staffing levels, the Fire

[1] This number is derived from **Table 4.0-6** of this EIR which depicts land use development forecasts for the City using the "High" growth rate projection discussed in Section 4.0 in conjunction with **Table 4.0-2**, which depicts commercial and industrial land use Floor Area Ratios (FAR). (73 industrial acres x 0.7 FAR) + (64 commercial acres x 0.6 FAR) = 89.5 acres/3,898,620 square feet

Department could not provide services to potential growth allowed under the proposed General Plan.

Because the City is expanding outward in multiple directions, significant growth could add strain to fire protection services in the area. The City currently has plans to construct a new water storage tank with a minimum usable capacity of 1 million gallons. Construction of this facility would address the concerns of water supply dependability, particularly if the tank and its pumps are sized to fire flow requirements and normal water usage computed at the peak use period (June to August). Fire flow needs are based on usage, type of construction, and square footage of buildings. The Orland Fire Department recommends the following:

- Commercial: 3,500 gpm with 3 to 4 hours duration
- Industrial: 4,500 gpm with 3 to 4 hours duration
- Multi-family residential: 3,500 gpm with 3 to 4 hours duration
- Single-family residential: 2,500 gpm with 2 to 3 hours duration

Projected needs for the Fire Department in the next 20 years include continued Public Works projects that upgrade the water system, including:

- Water main replacement
- Storage tank construction
- Fire hydrant replacement (as needed)
- Funding for the City to develop a computerized program that analyzes the existing water system serving the City to determine where problems are located and which water mains to replace in order to maximize fire flows and increase the existing water system operating pressures for better hydrant flows (first targeting all industrial and commercial districts, then multi-family residential districts)
- Continued work on a multi-agency centralized dispatch center with back-up systems

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Safety Element: Policy 4.3.A, Program 4.3.A.1, Program 4.3.A.2, Program 4.3.A.3, Program 4.3.A.4, Program 4.3.A.5, Policy 4.3.B, Policy 4.3.C

Policy 4.3.A seeks to maintain fire protection levels of service by continuing to require development to provide and/or fund fire protection facilities. Program 4.3.A.1 calls for development and adoption of standards for fire suppression facilities. Program 4.3.A.2 requires review of the need for automatic fire protection sprinklers within new residential and commercial development. Program 4.3.A.3 requires all new development to design public facility improvements to ensure that water volume and hydrant spacing are adequate. Program 4.3.A.4 recognizes that the City should consider amending or adopting an ordinance that requires clear and recognizable addresses for all structures. Program 4.3.A.5 enforces the requirements of Public Resources Code Sections 4290 and 4291 on all development projects. Policy 4.3.B states that the City will continue to support the needs of the Orland Volunteer Fire Department and provide assistance to maintain an efficient and functional fire service operation. Policy 4.3.C states that the City will strive to maintain and improve the current Insurance Service Office (ISO) rating of 4, for safety and associated economic benefits.

The proposed Safety Element policies and programs would direct the city to maintain adequate levels of fire protection service, through the review of new development and the requirement for fire protection standards to include funding on new facilities and equipment as necessary as well as for continued support of the fire department. Implementation of the proposed General Plan policies and programs would ensure adequate fire protection services and facilities for City residents and properties as new development occurs with places demands on the system. Impacts to fire protection services after implementation of the General Plan policies and programs would be **less than significant**.

Mitigation Measures

None required.

Wildland Fire

Impact 4.11.1.2 Implementation of the proposed General Plan could result in safety hazards associated with wildland fires in residential areas adjacent to open space and natural areas. This is considered a **less than significant** impact.

The City is surrounded by agricultural fields and is located in an area of low potential for wildfires. However, portions of the Orland Planning Area are located adjacent to Stony and Hambright Creeks. This area includes riparian corridors which are a potential source of wildland fires, started by either natural or human causes. This hazard would be greatest during the summer and early fall. Lack of rain lowers creek levels, and low humidity and high temperatures cause some vegetation to lose moisture. Given its proximity to Stony and Hambright creeks and the fact that Stony Creek is a year-around watercourse due, in part, to water flows from Black Butte Reservoir, the riparian area is unlikely to go completely dry, except during times of severe drought.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Safety Element: Policy 4.3.A, Program 4.3.A.1, Program 4.3.A.2, Program 4.3.A.3, Program 4.3.A.4, Program 4.3.A.5, Policy 4.3.B, Policy 4.3.C

Policy 4.3.A seeks to maintain fire protection levels of service by continuing to require development to provide and/or fund fire protection facilities. Program 4.3.A.1 calls for development and adoption of standards for fire suppression facilities. Program 4.3.A.2 requires review of the need for automatic fire protection sprinklers within new residential and commercial development. Program 4.3.A.3 requires all new development to design public facility improvements to ensure that water volume and hydrant spacing are adequate. Program 4.3.A.4 recognizes that the City should consider amending or adopting an ordinance that requires clear and recognizable addresses for all structures. Program 4.3.A.5 enforces the requirements of Public Resources Code Sections 4290 and 4291 on all development projects. Policy 4.3.B states that the City will continue to support the needs of the Orland Volunteer Fire Department and provide assistance to maintain an efficient and functional fire service operation. Policy 4.3.C states that the City will strive to maintain and improve the current Insurance Service Office (ISO) rating of 4, for safety and associated economic benefits.

Implementation of the proposed General Plan policies and programs would ensure adequate fire protection services and standards for the protection from wildland fires in the City. Impacts would be **less than significant** with implementation of the policies and programs contained in the General Plan.

Mitigation Measures

None required.

4.11.1.4 CUMULATIVE IMPACTS AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for fire protection and emergency medical services includes the General Plan Planning Area. Potential future development of these areas would further increase cumulative demand for fire protection, emergency medical services, and related facilities, necessitating new fire stations which could result in environmental impacts.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Increase in Demand for Fire Protection and Emergency Medical Services

Impact 4.11.1.3 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the City, contributing to the cumulative demand for fire protection and emergency medical services. As a result, additional fire and emergency medical services and related facilities would be required. This is considered a **less than cumulatively considerable** impact.

Implementation of the proposed General Plan would require additional fire related services, equipment, and facilities to serve the projected development within the Planning Area. Funding from property taxes, developer fees, impact fees, and other alternative sources of funding would provide sufficient resources to serve the needs of the Orland Volunteer Fire Department. Subsequently, future development proposed in association with the General Plan would increase revenues for the Orland Volunteer Fire Department and provide funding to accommodate the additional growth. Individual development projects would be subject to CEQA review on a project-by-project basis, ensuring that impacts would be less than cumulatively considerable.

On a cumulative basis, future development of residential units in natural areas that support a variety of trees, shrubs, and native grasses (Stony and Hambright creeks) have the potential to provide a substantial source of fuel and a potential to ignite and pose safety risks to adjacent and surrounding developments. Development in these areas has the potential to expose people or structures to risk of loss, injury, or death involving fires.

Implementation of Safety Element policies and programs listed under Impacts 4.11.1.1 and 4.11.1.2 would reduce the General Plan's contribution to cumulative impacts on fire protection and emergency medical service related impacts to **less than cumulatively considerable**.

Mitigation Measures

None required.

4.11.2 POLICE PROTECTION

4.11.2.1 EXISTING SETTING

ORLAND POLICE DEPARTMENT

Police protection services within the City are provided by the Orland Police Department. The Police Department currently operates from the police station located at 817 Fourth Street. However, due to the need for increased space, the Police Department is in the process of renovating an existing building located on Fourth Street in downtown Orland. The newly renovated building would provide the police department with approximately 7,500 square feet of floor space, nearly doubling the area of the current building. The new police building is scheduled for completion in 2011/2012.

The Police Department office is open from 8 a.m. to 5 p.m. Monday through Friday, except holidays. During weekends and at night, services are provided by the Glenn County Sheriff's Office, which provides patrol and emergency dispatch services to the City.

There are currently 16 employees in the Police Department, comprising one sworn community service officer, three non-sworn support employees, three sergeants, eight patrol officers, and one chief. Three of the officer positions are supported by grants, one of which is for the school resource officer. The department maintains five police vehicles, four marked and one unmarked. These vehicles are owned by Glenn County and leased to the City on a mileage basis (City of Orland Background Report, 2008). The Police Department officers serve a person per officer ratio of approximately 449 to 1 (not counting non-sworn support employees).

GLENN COUNTY SHERIFF'S OFFICE

The Glenn County Sheriff's Office provides police protection services to the unincorporated areas of Glenn County, including those areas outside the Orland city limits. The Sheriff's Office is located on and operates the main dispatch facility at 543 West Oak Street in the City of Willows. The Sheriff's Office currently employs 79 staff, of which 30 positions are divided between correctional staff, animal control staff, the Office of Emergency Services, administration and support staff (Jones, 2008). The 30 additional employees are sworn officers that maintain a person per officer ratio of approximately 660 to 1.

The Glenn County Sheriff's Adult Detention Facility, located at 141 S. Lassen Street in the City of Willows, houses inmates both of the County and of the cities of Orland and Willows. The facility is rated to hold as many as 144 state and federally incarcerated inmates and has 148 beds.

CALIFORNIA HIGHWAY PATROL

The California Highway Patrol (CHP), a state agency, provides traffic regulation enforcement, emergency accident management, and service and assistance on state roadways and other major roadways. The CHP has an office in the City of Willows.

4.11.2.2 REGULATORY FRAMEWORK

LOCAL

Existing Orland General Plan

The adopted Orland General Plan currently is used as the "blueprint" to guide future development within the city limits and those future annexations in unincorporated portions of the existing Planning Area. The existing General Plan has no policies applicable to police protection issues. The proposed General Plan would establish policies and programs associated with police services. Specific proposed policies and programs are discussed in the impact analyses below.

4.11.2.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

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

1) Substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection.

METHODOLOGY

The primary source of information for police protection services in the Orland area was the 2008 Orland Background Report and the LAFCo 2002 Draft Municipal Services Review (MSR) for the City of Orland. The MSR describes existing services, identifies potential needs, and discusses opportunities for more efficient provision of services. Other information came from research of other public documents and discussions with appropriate agencies.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Police Protection

Impact 4.11.2.1 The proposed General Plan would increase the demand for police protection services, which would require additional staff and facilities. This is considered a **less than significant** impact.

Development of the City under the proposed General Plan would result in an increase in population, an expansion of the Planning Area, and an increased amount of residential, commercial, and professional uses. Potential development will increase the need for police protection services. The Police Department seeks to maintain an officer per citizen ratio of 1.9 sworn officers per 1,000 residents. Based on these preferred ratios, the City at proposed General Plan buildout population in 2028 would require the addition of nine officers and three patrol vehicles. The Police Department notes that the existing station no longer has the capacity to house additional staff and equipment under current conditions; however, renovation of the

building on Fourth Street will provide adequate space, nearly doubling the area of the current building.

Police protection services within the City are provided by the Orland Police Department, which currently operates from the police station located at 817 Fourth Street, but will relocate to an existing building in downtown Orland once renovations are complete. The new location will provide the Police Department with approximately 7,500 square feet of floor space. The new police building is scheduled for completion by 2009/2010. There are approximately 1.9 officers per 1,000 residents (not counting non-sworn support employees). The Chief of Police of Orland has stated that the current force-level is able to meet current call demands within the service area (City of Orland Background Report, 2008). However, the Chief predicts that the current ratio could drop to 1.4 officers per 1,000 residents if grant funding does not continue. In addition, it is expected that the population served by the Orland Police Department will increase at a more rapid rate in the next ten years than it has in the past. It is anticipated that, during the life of the proposed General Plan, the City will need to expand the size of the Police Department staff in order to continue to serve the growing population.

Expansion of the City's Planning Area under the proposed General Plan would result in a projected 2028 population of approximately 12,286, an increase of 4,933 persons over the existing population. In 2007, the Police Department received 4,936 calls for service from a population of approximately 7,189. Assuming the same proportion between calls for service and population, the Police Department would receive approximately 8,436 calls for service by 2028 under the proposed General Plan.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Safety Element: Policy 4.4.A, Program 4.4.A.1, Program 4.4.A.2, Program 4.4.A.3, Policy 4.4.B, Program 4.4.B.1, Program 4.4.B.2

Policy 4.4.A states that the City will strive to provide high-quality police services for residents and businesses. Program 4.4.A.1 emphasizes the City's continued use of modern technology in providing effective law enforcement, as well as use of up-to-date technology to assist in the maintenance and improvement of service levels and response times. The City will continue to maintain and improve its stated response time standards for all calls, especially emergency calls. Program 4.4.A.2 states that the City will continue to participate in its mutual aid agreements and coordination between the City's police department and other law enforcement agencies. Program 4.4.A.3 requires that the City annually consider the needs of the Orland Police Department and will support those needs with budget revenues, grants, and impact fees. As part of this budget review process, the City will review impact fee rates to ensure they adequately reflect a fair share of funding by development and other law enforcement service recipients. Policy 4.4.B requires incorporation of police protection considerations into City and community activities. Program 4.4.B.1 refers development proposals received by the City to the Orland Police Department for review and comment. The review process considers the provision of access to lands for emergency services, street access to all structures, and crime prevention programs. Program 4.4.B.2 states that the City will continue to promote ongoing public safety programs, including Neighborhood Watch, Police Explorers, Volunteers in Police Services (VIPS), and other public education and crime prevention efforts.

Implementation of the proposed General Plan policies and programs would ensure adequate police protection services and facilities for the City. Impacts would be **less than significant**.

Mitigation Measures

None required.

4.11.2.4 CUMULATIVE IMPACTS AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for law enforcement includes the entire City of Orland. The development associated with the proposed General Plan and growth in the City (based on land use projections identified in the Orland General Plan) would result in population increases. Population growth would contribute to incremental cumulative increases in demand for law enforcement, resulting in additional environmental impacts associated with the development of new facilities.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Increase in Demand for Law Enforcement Services

Impact 4.11.2.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the City, contributing to the cumulative demand for law enforcement services and facilities. As a result, additional law enforcement services and related facilities would be required. This is considered a **less than cumulatively considerable** impact.

Implementation of the proposed General Plan would require additional law enforcement related services, equipment, and facilities to adequately serve the projected development within the City. Expansion of the City's Planning Area and city limits under the proposed General Plan would result in a projected 2028 population of approximately 12,286, an increase of 4,933 persons over the existing population. The Police Department seeks to maintain an officer per citizen ratio of 1.9 sworn officers per 1,000 residents. Based on these preferred ratios, the City at proposed General Plan buildout population in 2028 would require the addition of nine officers and three patrol vehicles. The Police Department notes that the existing station no longer has the capacity to house additional staff and equipment under current conditions; however, renovation of the building on Fourth Street will provide adequate space, nearly doubling the area of the current building.

Funding from property taxes and other alternative sources of funding (such as impact fees) would provide sufficient resources to serve the projected needs of the Orland Police Department. Subsequently, future development proposed in association with the General Plan would increase revenues for the Police Department and provide funding to accommodate the additional growth. Individual development projects would be subject to CEQA review on a project-by-project basis, ensuring that impacts would be less than cumulatively considerable.

Implementation of the proposed General Plan Safety Element policies and associated programs listed under Impact 4.11.2.1 would ensure that the proposed General Plan's cumulative law enforcement related impacts are **less than cumulatively considerable**.

Mitigation Measures

None required.

4.11.3 SCHOOLS

4.11.3.1 EXISTING SETTING

ORLAND UNIFIED SCHOOL DISTRICT

The Orland Unified School District serves the residents of the City and surrounding unincorporated residential areas, providing public education services for children in grades K-12. The district has an enrollment of approximately 2,300 K–12 students in seven schools plus independent study:

- Mill Street School (Grades K–2)
- Fairview School (Grades 3–5)
- C.K. Price Middle School (Grades 6–8)
- Orland High School (Grades 9–12)
- North Valley Continuation High School (Grades 9–12)
- Orland Elementary Community Day School (Grades K–6)
- Orland Community Day School (Grades 7–12)
- Independent Study Program (Grades K–12)

Table 4.11.3-1 summarizes current enrollment and capacity at the district's elementary and high schools. Currently, the Orland Unified School District is experiencing a decline in student enrollment. Despite the decrease in student attendance, the district is currently using portable classrooms as places of instruction for students.

TABLE 4.11.3-1
ORLAND SCHOOLS CURRENT ENROLLMENT AND CAPACITY

Name of School	Current Enrollment	Capacity
Mill Street School (K–2)	527	600
Fairview School (3–5)	543	550
C.K. Price Middle School (6–8)	530	540
Orland High School (9–12)	657	700
North Valley Continuation High School (9–12)	55	50
Orland Elementary Community Day School (K–6)	2	12
Orland Community Day School (7–12)	7	14

Source: Orland Unified School District, 2008

Independent Study Program

The Independent Study Program provides a program for students who need a more flexible learning environment than comprehensive or alternative schools provide. One full-time and two part-time teachers provide standards-based curriculum to students in grades K–12, using the

same instructional materials as the regular classroom teachers. Currently, the Independent Study Program meets at the Orland Public Library a minimum of once per week or every two weeks, depending on the grade level. Each student receives an individual learning plan, and a parent or guardian must agree to supervise the student's learning time. When appropriate, a student may attend one or more classes and/or participate in extracurricular activities on the main campus. Special education services are coordinated by the district special education coordinator; the teachers are trained to provide Services to English Learners.

ELEMENTARY SCHOOLS

The Orland Unified School District offers three campuses to serve elementary school students in the Orland area.

Mill Street School

Mill Street School, located at 102 Mill Street in Orland, serves kindergarten through second grade students. Current enrollment at the school is 527, and current capacity is 600 students. Mill Street School has 30 regular classrooms and 30 full-time teachers. The school provides a full school lunch program, offering free or reduced price breakfast and lunch to those students who qualify. At this point in time, approximately 85 percent of the students at Mill Street School utilize this program. In addition to standard academic instruction, Mill Street School offers several programs to students, including an after-school day care program run at Fairview School. A jump rope club and a karate club offer after-school activities as well.

In terms of funding, the State General Fund provides funding, and other categorical funds are obtained through the State School Improvement Program, as well as through the federally funded Title 1 program. For the 20 years that the proposed General Plan is expected to serve the City, several needs are foreseen for the future of Mill Street School and other schools serving Orland residents. Portable buildings can be used for any student enrollment over current capacity for several years. However, in the long run, it is certain that the City will need another elementary school campus to serve the growth predicted over the next 20 years.

Fairview School

Fairview School, located at 1308 Fairview, serves students in grades 3 through 5. Current enrollment at the school is 543, which essentially places Fairview School at capacity for students. In 2002, the school submitted a "Modernization Application" to the State of California, in order to obtain funding to provide more housing (classrooms) for their students. One of the results of this modernization allowed the 2006 installation of a new two-classroom portable. The school principal predicts severe building needs in the near future for Fairview School.

There are 24 regular elementary school teachers employed by Fairview School, as well as one full-time resource specialist teacher, a 40 percent music/60 percent Title I teacher, one principal, thirteen part-time instructional aides/yard supervision/crossing guards, and administrative support from two district psychologists, as well as the superintendent and assistant superintendent. Fairview also employs one full-time special day class teacher, who works with those students with learning disabilities who are pursuing individual education plans.

Fairview offers its students a hot lunch program, with hot breakfast and lunch offered free of cost to those who qualify. Approximately 70 percent of the students at Fairview School qualify for this program.

Fairview provides several programs to help students, including a SPARK (Sports, Play, and Active Recreation for Kids) program, which runs from 2:45 p.m. to 6 p.m. weekdays, and a Response to Intervention (RTI) program to better serve the individual learning needs of the students. General funding for Fairview School is as discussed previously for Mill Street School.

Orland Elementary Community Day School

The Orland Elementary Community Day School, located at 920 Second Street, is an alternative education school for students in grades kindergarten through 6 who have been expelled from a regular school or were in danger of expulsion. The school's mission is to maintain an educational base and structure for the students, help them develop good social and behavioral skills, and then reintegrate them into their original school. The program attempts to balance providing a traditional school structure with meeting individual needs. Staff, the student, and parents collaborate to develop an individual action plan for the student.

The school is a single-room classroom, with some additional room for storage and office for attendance and clerical support staff. The classroom accommodates a maximum of 12 students; however, during the 2007–2008 school year, only 2 students attended this school. The school employs one fully accredited teacher.

MIDDLE SCHOOL

C.K. Price Middle School

C.K. Price Middle School, located at 1212 Marin, serves students in grades 6 through 8. Currently the middle school is at capacity with approximately 530 students. Within the last few years, multiple modular classrooms have been added to the campus in order to meet the growth needs of the school.

Twenty-seven (27) full-time teachers are employed by the school, including the special programs that are offered: Resource Specialist Program (RSP), Special Day Class (SDC), English language learners, along with extra help and support in opportunity classrooms.

The school hot lunch (free or reduced price lunches) program is utilized by approximately 70 percent of the students who attend the middle school.

Added enrollment could create overcrowding at C.K. Price Middle School. Lunch is served in two shifts to accommodate all of the students. Lunch is served in the cafeteria facility, which becomes severely impacted on rainy days. Facility needs in the future include new structures to house the gym and the cafeteria.

Currently, the school library is housed in a modular building purchased from UC Davis 20 years ago, along with science class and the 6th grade RSP class. Although the building is old, the floor underwent repairs and the building is able to meet the needs of the school from a physical aspect.

According to the school's principal, the biggest needs of C.K. Price Middle School are a new gymnasium, some additional classroom space, and some traffic control around the school with slow and stop signs, in order to provide increased safety to students.

HIGH SCHOOLS

Orland High School

Orland High School is located at 101 Shasta Street and serves 657 students in grades 9 through 12. The high school is approaching the capacity of 700 students. Orland High School has 15 buildings, of which three are portables, and 39 teachers on staff. There are several clubs on campus for students to join as well as at least four sports in fall, winter, and spring.

The library makes extensive use of computer-based technology, with an online library catalog, full-text periodical databases, word processing and productivity software, and access to the Internet through the library's computer network.

North Valley Continuation High School

North Valley Continuation High School serves as the first step of intervention for those students who are not succeeding at the Orland High School, for behavioral or academic reasons. The school, located at 250 Roosevelt Drive in Orland, serves approximately 55 students. North Valley is staffed by two full-time teachers and one part-time teacher, and offers its students the full range of academic courses found at Orland High School.

The condition of the school was described as "fair" by the school's principal. Current needs require maintenance work to the "big room," which is the oldest and most used room in the school. Additional needs include more space for clerical/office activities and additional space for Individual Education Program (IEP) meetings and student activity work.

Orland Community Day School

The Orland Community Day School, located at 924 Second Street, is an alternative education school for students in grades 7 through 12 who have been expelled from a regular school or were in danger of expulsion. The school's mission is to maintain an educational base and structure for the students, help them develop good social and behavioral skills, and then reintegrate them into their original school. The program attempts to balance providing a traditional school structure with meeting individual needs. Staff, the student, and parents collaborate to develop an individual action plan for the student.

The school is a single-room classroom, with some additional room for storage and office for attendance and clerical support staff. The classroom accommodates a maximum of 14 students; during the 2007–2008 school year, a total of 7 students attended this school. The school employs one fully accredited teacher.

4.11.3.2 REGULATORY FRAMEWORK

STATE

Leroy F. Greene School Facilities Act of 1998 (SB 50)

The Leroy F. Greene School Facilities Act of 1998, also known as Senate Bill (SB) 50, changed methods of school construction financing in California, in part by regulating a school district's authority to levy impact fees. Prior to SB 50, case law allowed cities to consider and impose conditions to mitigate impacts of new development on school facilities. SB 50 suspended this

authority, commonly referred to as *Mira* authority. Government Code Section 65995, as amended by SB 50, establishes the dollar amount school districts may impose on new development. These amounts were adjusted for inflation in the year 2000 and are adjusted every two years thereafter. The current fees are $2.63 per square foot for residential development and $0.42 for commercial development. The Orland Unified School District has historically used these fees to lease portables. The district also uses the fees to construct new classrooms when the need presents itself.

Under specified circumstances, school districts may impose alternative fees pursuant to Government Code Sections 65995.5 and 65995.7 (Level 2 and/or Level 3 fees, respectively). If state funding expires at any time, school districts may impose up to 100 percent of the state average cost of school facilities on new development (alternative Level 3 fees).

California Government Code Section 65995(e) states that a city does not have the ability to condition any land use approval, whether legislative or adjudicative, on the need for school facilities. In addition, Government Code Section 65995(f) prohibits a city or county from imposing a requirement to participate in a Community Facilities District (CFD), also known as a Mello-Roos district. Government Code Section 65995(g) (1) further states that a developer's refusal to participate in a CFD cannot be a factor in considering a legislative or adjudicative act. However, Government Code Section 65995(g)(2) says that a person can voluntarily elect to pay a fee through a CFD.

Government Code Section 65995(h) states that the payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to provisions of SB 50 and Section 17620 of the Education Code is deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act related to the provision of adequate school facilities. Section 65996(b) states that, notwithstanding Section 65858, the provisions of CEQA or any other provision of state or local law, a state or local agency may not deny or refuse to approve a legislative or adjudicative act on the basis that school facilities are inadequate. Historically, the City has taken the initiative to require developers to mitigate the impact on schools by conditioning tentative maps.

LOCAL

Orland Unified School District

As previously noted, the Orland Unified School District manages all public schools in the Orland area. Governance is by a five-member elected board. A district superintendent oversees day-to-day operations of the district.

The Orland Unified School District completed a Facilities Assessments and Master Plan in September 2007. According to the Facilities Assessments and Master Plan, there is a significant need for at least two new elementary schools in order to adequately serve the district's community by the year 2014. A total of 40 classrooms are projected to be needed. Elementary student projections (K–6) suggest that there will be an additional 900 students by the academic year 2014–2015 (Orland Unified School District, 2007). The potential needs at the high school level consist of the construction of a new high school campus as a replacement for the existing high school. The district's middle school is also in need of significant modernization, specifically the middle school library, cafeteria, and gymnasium.

4.11.3.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

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

1) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives for schools.

METHODOLOGY

Evaluation of potential public school impacts was based on review of applicable public documents and consultations with Orland Unified School District staff.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Public School Facilities

Impact 4.11.3.1 Implementation of the proposed General Plan would increase demand for school services provided by the Orland Unified School District. This is considered a **less than significant** impact.

Implementation of the proposed General Plan would result in the addition of new residents and a resultant increase in the number of students in the Orland Unified School District. The district's Facilities Assessments and Master Plan estimates that the public school enrollment will increase by an additional 900 elementary students and 400 high school students by the academic year 2014-2015. As stated in the Existing Setting subsection above, the district currently has an enrollment of approximately 2,300 K–12 students. Based on the projected Master Plan increase of an additional 3,600 students through 2015, the anticipated increase in students per year would be approximately 217 if enrollment increases remain stable. When projected over the life of the proposed General Plan to the year 2028, there would be an additional 4,340 students over current enrollment for a total of 6,640 students.

As noted in the district's Facilities Assessments and Master Plan, some of the district's existing facilities are at the outer edge of their serviceable life and in some cases are inadequate to serve modern curriculum requirements and growing student populations. Future growth in the City would likely require the need for at least two new elementary schools, significant upgrades and modernization of the district's middle school (C.K. Price Middle School), and strong consideration for a new high school campus (Orland Unified School District, 2007). The construction of these upgrades could cause significant environmental impacts.

The district would attempt to utilize several funding sources to facilitate the construction and maintenance of the additional facilities needed to serve projected growth. Sources include, but are not limited to, Proposition 47 funds, developer impact fees, and any local general obligation bond funds. In addition, provisions of Senate Bill (SB) 50 state that payment of fees provide full and complete school facilities mitigation. Typical environmental effects as a result of the construction and operation of new school facilities include air quality (during construction and

operation), noise (during construction and operation), biological and cultural resources (depending on location), public services (electric, water, and wastewater), and traffic (during construction and operation). However, the environmental effects of construction of such facilities within the Planning Area have been programmatically evaluated in the technical analyses of this EIR as part of overall development of the Planning Area. Furthermore, the Orland Unified School District would be required to conduct the appropriate environmental review prior to any significant expansion of school facilities or the development of new school facilities.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed Orland General Plan contains no policies or programs that would assist in reducing any potential impacts to public schools because the provisions of SB 50 state that a city does not have the ability to condition any land use approval, whether legislative or adjudicative, on the need for school facilities. Additionally, SB 50 establishes the dollar amount school districts may impose on new development.

As indicated previously, Government Code Section 65995 establishes the dollar amount school districts may impose on new development; however, this may not be sufficient to fund all required facilities. Funding from state grants is possible but other sources would most likely still be required. Sources include, but are not limited to, Proposition 47 funds, increased developer and local tax fees, and the local general obligation bond funds. Because specific locations for public schools have not been identified, the site-specific environmental impacts of constructing the facilities cannot be determined at this time. However, it is reasonable to assume that the construction of schools and related facilities would not result in any environmental impacts not already addressed in the technical sections of this Draft EIR. Additionally, new public school facilities must undergo rigorous site-specific CEQA and California Board of Education evaluation prior to construction to identify and lessen environmental-related impacts.

California Government Code Sections 65995 (h) and 65996 (b) provide full and complete school facilities mitigation. Section 65995(h) states that the payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code is deemed to be full and complete mitigation of the impacts for the planning, use, development, or the provision of adequate school facilities, and Section 65996 (b) states that the provisions of the Government Code provide full and complete school facilities mitigation.

This impact is considered **less than significant.**

Mitigation Measures

None required.

4.11.3.4 CUMULATIVE IMPACTS AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for the educational system includes all of the schools within the Orland Unified School District. The development associated with the proposed Orland General Plan and growth in the Planning Area would result in population increases. These increases would contribute to an incremental cumulative increase in demand for schools resulting in additional environmental impacts associated with the development of new facilities.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Schools Impacts

Impact 4.11.3.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would result in a cumulative increase in student enrollment and require additional schools and related facilities to accommodate the growth. This is a **less than cumulatively considerable** impact.

Implementation of the proposed General Plan would require additional educational services and facilities to adequately serve the projected development within the City. Funding from property taxes and other alternative sources of funding such as grants would provide sufficient resources to serve the projected needs of the City schools.

However, as noted above, current State law states that the environmental impact of new development on school facilities is considered fully mitigated through the payment of required development impact fees. Furthermore, any significant expansion of school facilities or the development of new school facilities would be subject to the appropriate environmental review.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Orland Unified School District is subject to CEQA and California Department of Education standards for proposed school projects. These standards would reduce the potential for significant environmental impacts to occur in association with the construction of new school facilities in the Planning Area. Additionally, as noted above, current State law states that the environmental impact of new development on school facilities is considered fully mitigated through the payment of required development impact fees. Therefore, cumulative impacts on public school facilities are considered **less than cumulatively considerable**.

Mitigation Measures

None required.

4.11.4 PARKS AND RECREATION

4.11.4.1 EXISTING SETTING

Orland is in a unique position with respect to its parks, recreation, and open space amenities. Citizens benefit from City-provided, developed (or "improved") resources as well as a range of additional regional resources including Black Butte Lake, Lassen National Park (and Lassen National Forest), the Mendocino National Forest, the Sacramento River, and more. And, while there are existing and future challenges in regard to the City's provision of recreation facilities and services, there is a great range of opportunity where the City can "get ahead of the curve" in terms of meeting the parks, recreation, and open space needs of its future residents.

The City currently does not have an open space, parks, and recreation master plan. A common approach to municipal recreation planning is development and implementation of such a master plan for the identification of park and recreational needs in a given planning area, the management of existing recreational resources, and the development of additional facilities to meet identified needs. This encourages public agencies to inventory their recreational resources

and develop policies for responsible utilization and stewardship. A comprehensive recreation master plan develops policies and parkland acquisition strategies directed toward the development of additional recreational facilities. Policies and parkland acquisition tools also address achieving equilibrium between economic development and providing for the community's recreational needs.

The National Recreation and Park Association (NRPA) has established guidelines for the amount of recreational land necessary to serve a given population. These guidelines are oriented toward more metropolitan areas; therefore, NRPA advises each jurisdiction to establish its own standards that are tailored to the unique characteristics of the area. The NRPA standards recommended a range of 6 to 10.5 acres of developed parkland per 1,000 residents.

The Subdivision Map Act allows a local jurisdiction to require fees or land dedication for park and recreation purposes as a condition of approval of a tentative map. In 2003, the Orland City Council set the park dedication standard at 8.4 acres per 1,000 residents based upon the 53.1 acres of improved parkland and the 2000 Census figure of 6,281 residents. The City currently has approximately 53.1 acres of improved parks and facilities:

- Lely Aquatic Park – 30.0 acres
- Vinsonhaler Park – 18.1 acres
- Library Park – 2.6 acres
- Spence Park – 2.1 acres
- Welcome to Orland Park – 0.26 acres

Figure 4.11-1 shows the locations of parks and recreation areas.

As applied to public parks and recreation resources, standards provide a measurement of recreation space and facilities that should be provided for specific population numbers. The standards were established to help determine if an area has sufficient park area, facilities, etc. Standards are also used to establish the space and other requirements for recreation facilities in order to know what improvements a site may accommodate. Recreation area, facility, and open space standards are used in the planning, design, and decision-making process.

A new sports complex is in the process of being developed at Orland High School through a combination of grant funding and City funding. The new complex will provide space for two full-size or multiple youth soccer fields. As part of the El Paseo project, a 5-acre public park with sports field is planned. To date, the project has been approved but construction has not commenced. A recreation center including office space for the Department of Parks and Recreation staff as well as gymnasium space, restrooms, and an indoor basketball court has been constructed at Lely Park.

In addition to the managed recreation at City parks, an opportunity for passive recreation for the public may also warrant further investigation by the City. Streams and their adjacent riparian corridors have long been recognized as important recreational resources, providing opportunities for wildlife viewing, picnicking, fishing, and the like. Stony Creek and its floodplain (including Hambright Creek) provide the greatest extent of "natural" open space in the Planning Area (totaling approximately 675 acres); however public access is extremely limited because the majority of this area is privately owned.

To those ends, the City is pursuing funding through grant opportunities for a proposed 1½ mile creek trail project. The Stony Creek Recreation and Interpretive Area project will add five new public access areas along the south bank of Stony Creek between Highway 99 and the Blair

Estates Subdivision, Unit 1. Phase 1 of the proposed project includes development of the 10-acre access granted to the City in perpetuity from the Blair Estates Subdivision, Unit 1. Funding for the four remaining access points will be applied for in future phases.

An ongoing challenge for the City is the upkeep and maintenance of its recreation facilities. The assessment area that had been formed under the Landscape and Lighting Act to fund the maintenance and operations of these parks was not supported by the voters in the late 1990s, resulting in elimination of this funding. However, the City's Public Works Department continues maintenance of the parks for the value and benefit for the citizens of Orland.

4.11.4.2 REGULATORY FRAMEWORK

STATE

Quimby Act

The Quimby Act (California Government Code Section 66477) allows cities and counties to adopt ordinances requiring the dedication of parkland, fees in lieu of parkland dedication, or a combination of both to be used only for the purpose of acquiring land for parks. The act provides for the conditioning of new development at the tentative map stage to dedicate unimproved parkland at the minimum standard of 3 acres per 1,000 residents to a maximum of 5 acres per 1,000 residents. The parkland and/or in-lieu fees are to be used for new or existing neighborhood or community parks or recreational facilities to serve the subdivision.

LOCAL

4.11.4.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, park and recreation service impacts are considered to be significant if the following could result from the implementation of the proposed General Plan:

1) Substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable park acreage ratios, or other performance objectives for parks.

2) Increase in 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.

3) New recreational facilities or expansion of recreational facilities which might have an adverse physical effect on the environment.

METHODOLOGY

This section was prepared and evaluated based on consultation with City staff and review of applicable public documents.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Demand on Existing Park Facilities

Impact 4.11.4.1 Implementation of the proposed General Plan would encourage an increase in the local population, thereby leading to an increase in the use of existing park and recreation service facilities. This is considered a **potentially significant** impact.

Expansion of the City's Planning Area and city limits under the proposed General Plan would result in a projected 2028 population of approximately 12,286 persons, an increase of 4,933 persons over the existing population. Assuming Orland's park dedication standard of 8.4 acres of improved parkland per 1,000 residents, a total of 50.1 additional acres would be needed for parkland acquisition and improvement (12,286 persons/1,000 persons x 8.4 acres of parkland = 103.5 acres – 53.1 existing acres of parkland = 50.1 acres).

The additional demand on existing parks and recreational facilities, particularly the City-managed facilities, would increase the need for maintenance and improvements. These improvements could have environmental impacts, although the exact impacts cannot be determined since the potential improvements are unknown at this time. However, given the developed character of the existing parks, these impacts are expected to be limited.

Typical environmental effects regarding the construction and operation of parks and recreational facilities may involve issues with noise, air quality (during the construction of the facility), biological resources (depending on location), historic/cultural resources (depending on location), public services and utilities (demand for police and fire protection, electric, water, and wastewater service) and traffic on a local neighborhood level. The environmental effects of construction of such facilities in the Planning Area have been considered in the technical analyses of this DEIR as part of overall development of the Planning Area.

As previously noted, the proposed Planning Area has approximately 675 acres of natural open space and another 53.1 acres of improved parks, with additional park space and recreational facilities planned. As new developments are proposed, the City will have an opportunity to work with developers to designate additional open space lands and improve lands set aside for developed parks. Opportunities for increased access to Stony Creek are a high priority for the City, which will promote access through the proposed Stony Creek Nature Trail. The existence of additional park area would reduce the impact the increased population would have on existing facilities.

Figure 4.11-1

Public Facilities

N

WEST ANCHOR PARK

STONEY CREEK NATURE TRAILS

EAST ANCHOR PARK

Spence Park

Legion Memorial Park

Union High School

Visonhaler Park

GCOE

Butte College

Orland Unit Water User's Association

City Hall P.D.

City Library and Park

Mill Street Grammar School

CK Price Middle School

County Fairgrounds

Fairview Grammar School

Corperation Yard

County Buildings

Lely Aquatic Park

INTERSTATE 5

HWY 32

HWY 32 RE-ALIGNMENT

F.D.

SOUTH CANAL

SHASTA STREET

TEHAMA STREET

WALKER STREET

E. WALKER STREET

(STATE HIGHWAY 32)

COUNTY ROAD 12

COUNTY ROAD M 1/2

COUNTY ROAD MM

COUNTY ROAD 15 1/2

LATERAL 50

COUNTY ROAD 200

SOUTH STREET

YOLO STREET

EAST STREET

WOODWARD AVENUE

PAPST AVENUE

SIXTH STREET

RAILROAD AVENUE

COUNTY ROAD KK

FAIRVIEW

- Planning Area
- City Boundary
- Public Facility

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, and Public Facilities Element: Policy 5.10.A, Program 5.10.A.1, Program 5.10.A.2, Program 5.10.A.3, Program 5.10.A.4, Program 5.10.A.6, Program 5.10.A.8, Policy 5.10.D, Program 5.10.D.1

Policy 5.10.A seeks to provide adequate parkland acreage and facilities in both location and size to meet the recreational needs of existing and future residents. Program 5.10.A.1 requires the City to adopt a park dedication standard of 8.4 acres per 1,000 residents for the City to maintain the existing parks standard. Programs 5.10.A.2, 5.10.A.3, and 5.10.A.4 seek the acquisition of land or the addition of improvements in those existing neighborhoods where recreation facilities are currently limited or nonexistent, including most new multi-family development. Program 5.10.A.6 requires the City to review development proposals for consistency with this element and require easements, dedications, and improvements when necessary. This program is similar to Program 5.10.A.8 which states that the City will require a neighborhood park and/or recreational facilities within the area designated as the Northeast Specific Plan Area at the expense of any future development. Policy 5.10.D explores available financing and acquisition methods, tools, and techniques in the development and maintenance of park and recreation facilities. Program 5.10.D.1 states that the City should explore means for ongoing maintenance of the various facilities, areas, and trails that can be accomplished through agreements with other public agencies, volunteer user groups, and/or private parties.

MM 4.11.4.1 The following mitigation measure shall be incorporated as a program under Policy 5.10.D in the Open Space, Conservation, and Public Facilities Element:

During its annual budget review, the City shall consider the needs of park facilities and will support those needs with budget revenues, grants, and impact fees. As part of the budget review process, the City shall review impact fee rates to ensure that the cost of improvements is equitably distributed.

Implementation of the proposed General Plan policies and implementing actions, along with mitigation measure **MM 4.11.4.1** identified above, would reduce the proposed General Plan's parks and recreation impacts to **less than significant.**

Mitigation Measures

None required.

4.11.4.4 CUMULATIVE IMPACTS AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for parks and recreation services includes all recreation facilities in the City. Potential future development of these areas would also result in cumulative demand for parks and recreation services.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Park and Recreation Demands

Impact 4.11.4.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would require additional park and recreation facilities within the Planning Area boundaries. This would be a **less than cumulatively considerable** impact.

Under buildout conditions, the City could potentially have an anticipated population of 46,513 (as shown on **Table 4.0-1**). The buildout population would be an increase of 39,160 persons over the 2008 population. Assuming Orland's park dedication standard of 8.4 acres of improved parkland per 1,000 residents, a total of 329 acres additional parkland over existing conditions would be needed for parkland acquisition and improvement (46,513 persons/1,000 persons x 8.4 acres of parkland = 391 acres – 53.1 existing acres of parkland = 337.9 acres).

Funding from development in-lieu fees and other alternative sources of funding such as grants would provide sufficient resources to serve the projected needs of the City's parks and recreational facilities. Further, implementation of the proposed General Plan Open Space, Conservation, and Public Facilities Element goals, policies, and programs listed under **Impact 4.11.4.1**, along with mitigation measure **MM 4.11.4.1**, ensures that the proposed General Plan's cumulative parks and recreation related impacts are **less than cumulatively considerable.**

Mitigation Measures

None required.

REFERENCES

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County of Glenn. 1993. *Glenn County General Plan.* Adopted June 15, 1993.

Jones, Larry, Sheriff. 2008. County of Glenn Sheriff's Office. Personal Communication.

Orland Unified School District. 2007. *Facilities Assessments and Master Plan.*

4.12 Public Services and Utilities

This section describes the public facilities and services for the proposed Planning Area. Each service includes descriptions of existing facilities, service standards, and potential impacts on each service resulting from implementation of the proposed General Plan. Services include water supply, wastewater collection and treatment, stormwater drainage, solid waste, and energy and communication services. Key issues addressed in this section include increased demand for water service, increased demand for wastewater service, stormwater drainage, increased solid waste disposal, and increased demand for energy and communication services. Information for this section primarily came from City documents, City staff interviews, and the 2003 Draft Municipal Services Review.

4.12.1 WATER SERVICE

4.12.1.1 EXISTING SETTING

ORLAND PUBLIC WATER SYSTEM



The City of Orland's primary water system, Public Water System 1110001, consists of six wells distributed throughout the City. The sole source of water within the City is groundwater. The wells have an average depth of approximately 200 feet, and the average depth of groundwater is generally between 20 and 50 feet. Pressure for the City water system is provided by gravity flow from an 80,000-gallon elevated storage tank. The wells produce between approximately 500 and 1,200 gallons per minute each (see **Table 4.12.1**) and are automatically regulated by the water level in the storage tank. The City is investigating the possibility of either rehabilitating or replacing the elevated tank. Auxiliary stand-by power is provided at four of the City's wells.

The water transmission and distribution systems consist of approximately 34 miles of pipeline ranging in diameter from 4 inches to 10 inches. **Figure 4.12.1-1** illustrates the existing water system for the City.

TABLE 4.12-1
GENERAL WELL DATA

Well	Status	Capacity (gpm)[1]	Description
8th Street	Inactive	(620)	Sand separator; water lube; 10,000-gallon pressure tank, chlorinator
Central Street	Active	860	10,000-gallon pressure tank, direct drive gasoline engine, chlorinator
Corp. Yard	Active	1,030	7,500-gallon pressure tank, water lube, chlorinator
Railroad Avenue	Active	1,240	10,000-gallon pressure tank, natural gas generator, water lube, chlorinator
Suisun	Active	1,090	Direct drive natural gas engine, 10,000-gallon pressure tank, chlorinator

Well	Status	Capacity (gpm)[1]	Description
Woodward	Active	890	Direct drive natural gas engine, 10,000-gallon pressure tank, chlorinator
Roosevelt	Active	700	2,500-gallon pressure tank
Lely Aquatic Park	Inactive	(500)	10,000-gallon pressure tank
Total		**5,810 (6,930)[2]**	

Source: City of Orland Background Report, 2008
Notes: 1) gallons per minute. 2) Total with inactive wells.

All customer water services within the City are metered services. Water fees are currently $24.00 for two months for both residential and non-residential customers, up to 15,000 gallons. For usage beyond 15,000 gallons, customers are charged an additional $0.60 per 1,000 gallons. The Orland water system currently serves 2,315 residential water customers and 300 non-residential customers. Water use which is not metered includes water used for park irrigation, water main flushing, construction water, and distribution system losses. Typical values for unaccounted water are in the range of 10 to 20 percent.

The City Engineer has indicated that, should Orland grow to the west, a new well would probably be required on the west side of the freeway (Skillman, 2007). There are currently two water borings under Interstate 5 (I-5), which are located at Trinity Street and Walker Street. These borings currently provide City water service to the west side of I-5.

The Haigh Field Industrial Park, located at the Haigh Field airport 1.2 miles southeast of Orland, is served by an auxiliary water system. Public Water System 1105003 is not connected to the City's primary water system, has one well that produces 1,740 gallons per minute, and is also equipped with auxiliary standby power.

WATER QUANTITY AND QUALITY

In 2003, the annual average daily water production was 305 gallons per capita per day, but production varied between 137 gallons per capita per day in March and 575 gallons per capita per day in July.

Based on the 2002 calendar year data, the State of California Department of Health Services (DHS) determined that the Orland water system was in compliance with the Water Works Standards for source capacity since the needed source capacity was 5,036 gallons per minute (gpm) and the total source capacity was 6,430 gpm. The DHS evaluation of the needed source capacity is based upon peak hour demand but does not include provisions for fire flows. Given the small amount of existing storage volume, the City's Water System Master Plan recommended that the existing source capacity be increased by a minimum of 620 gpm from 6,430 to 7,050 gpm to meet the combined maximum daily demand plus fire flow demand.

In addition, the City has a well at the Lely Aquatic Park that is currently not connected to the City's public water system. The City has tentative plans to install a larger pump in the well and include the well in its water system operation. According to the City of Orland Engineer, the City intends to connect immediately following the installation of a 10-inch pipe on Hambright Avenue between the Orland Park and Whitehawk Estates subdivisions (Skillman, 2007).

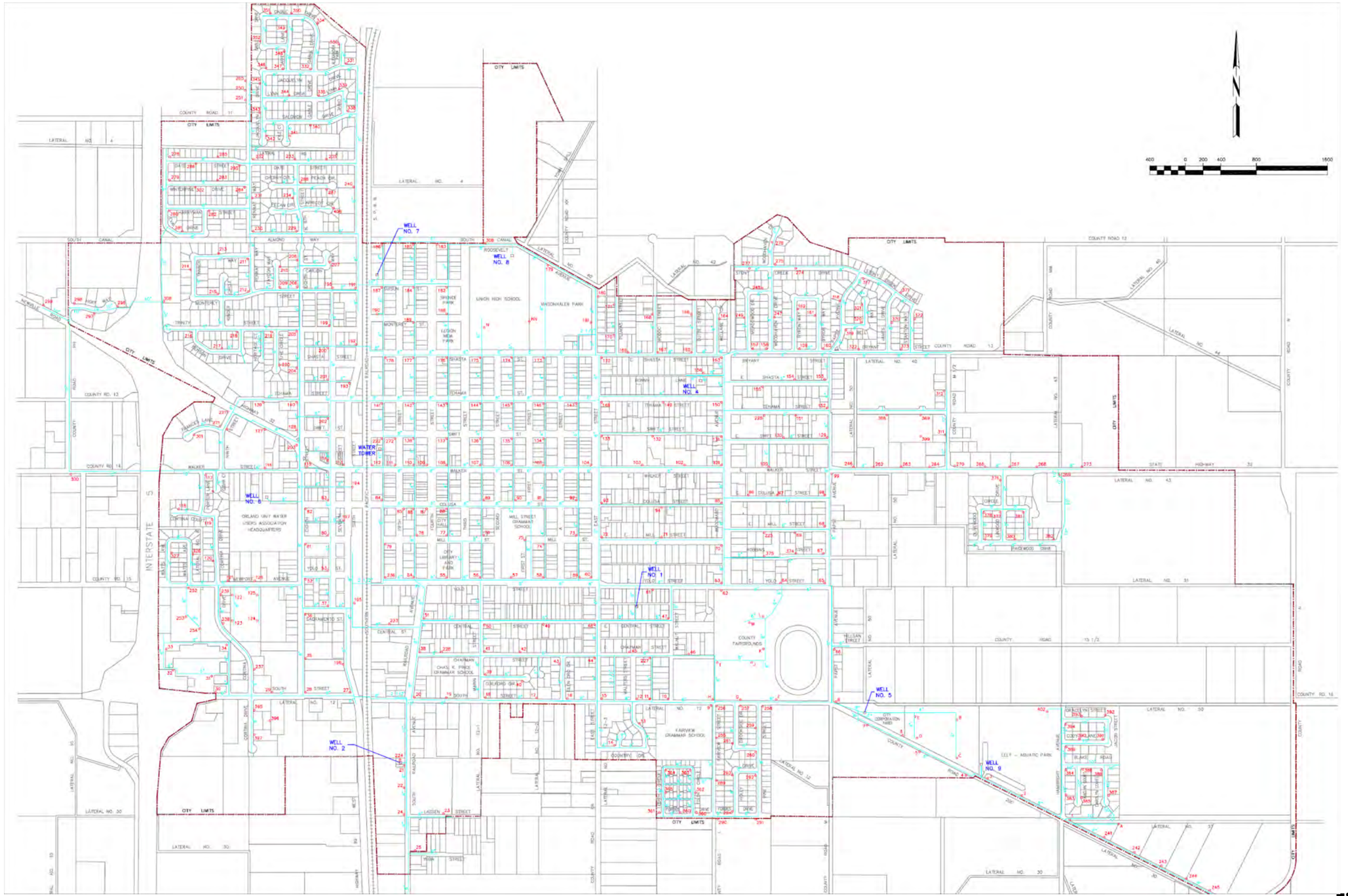


Figure 4.12.1-1

Water System

PMC®

According to the City Engineer, Orland's water supply does not have water quality or contamination issues (Skillman, 2007). Continuous disinfection is provided at six of the City's seven wells. The Roosevelt Well has the facilities necessary to chlorinate if needed. Water treatment is a preventative measure due to intermittent positive bacteriological test of the wells. In 2006, a Water System Master Plan was completed for Orland and is currently on file with the City.

4.12.1.2 REGULATORY FRAMEWORK

STATE

California Department of Health Services

The Department of Health Services, Division of Drinking Water and Environmental Management, oversees the Drinking Water Program, which regulates public water systems and certifies drinking water treatment and distribution operators. It provides support for small water systems and for improving their technical, managerial, and financial capacity. The program provides subsidized funding for water system improvements under the State Revolving Fund (SRF) and Proposition 50 programs. The program also oversees water recycling projects, permits water treatment devices, supports and promotes water system security, and oversees the Drinking Water Treatment and Research Fund for methyl tertiary-butyl ether (MTBE) and other oxygenates.

California Code of Regulations

California Code of Regulations (CCR) Title 22, Chapter 15, Article 20 requires all public water systems to prepare a Consumer Confidence Report for distribution to its customers and to the Department of Health Services. The Consumer Confidence Report provides information regarding the quality of potable water provided by the water system. It includes information on the sources of the water, any detected contaminants in the water, the maximum contaminants levels set by regulation, violations and actions taken to correct them, and opportunities for public participation in decisions that may affect the quality of the water provided. Health and Safety Code Section 116470(b) requires public water systems with more than 10,000 service connections that detect contaminants above their public health goals to provide exceedance reports every three years and to hold public hearings regarding their reports. The City prepared its most recent Consumer Confidence Report for the year 2008.

Urban Water Management Planning Act

The Urban Water Management Planning Act has as its objectives the management of urban water demands and the efficient use of urban water. Under its provisions, every urban water supplier is required to prepare and adopt an urban water management plan. An "urban water supplier" is a public or private water supplier that provides water for municipal purposes either directly or indirectly to more than 3,000 customers or that supplies more than 3,000 acre-feet of water annually. The plan must identify and quantify the existing and planned sources of water available to the supplier, quantify the projected water use for a period of 20 years, and describe the supplier's water demand management measures. The urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Department of Water Resources must receive a copy of an adopted urban water management plan.

Senate Bill (SB) 610 and Assembly Bill (AB) 901

The State Legislature passed SB 610 and AB 901 in 2001. Both measures modified the Urban Water Management Planning Act. SB 610 requires additional information in an urban water management plan if groundwater is identified as a source of water available to an urban water supplier. It also requires that the plan include a description of all water supply projects and programs that may be undertaken to meet total projected water use. SB 610 requires a city or county that determines a project is subject to the California Environmental Quality Act (CEQA) to identify any public water system that may supply water to the project and to request identified public water systems to prepare a specified water supply assessment. The assessment must include, among other information, an identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and water received in prior years pursuant to these entitlements, rights, and contracts.

AB 901 requires an urban water management plan to include information, to the extent practicable, relating to the quality of existing sources of water available to an urban water supplier over given time periods. AB 901 also requires information on the manner in which water quality affects water management strategies and supply reliability. The bill requires a plan to describe plans to supplement a water source that may not be available at a consistent level of use, to the extent practicable. Additional findings and declarations relating to water quality are required.

Senate Bill 221

SB 221 adds Government Code Section 66455.3, requiring that the local water agency be sent a copy of any proposed residential subdivision of more than 500 dwelling units within five days of the subdivision application being accepted as complete for processing by the city or county. It also adds Government Code Section 66473.7, establishing detailed requirements for establishing whether a "sufficient water supply" exists to support any proposed residential subdivisions of more than 500 dwellings, including any such subdivision involving a development agreement. When approving a qualifying subdivision tentative map, the city or county must include a condition requiring availability of a sufficient water supply. The applicable public water system must provide proof of availability. If there is no public water system, the city or county must undertake the analysis described in Government Code Section 66473.7. The analysis must include consideration of effects on other users of water and groundwater.

4.12.1.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

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

1) Result in the need for new systems or a substantial expansion or alteration to the local or regional water treatment or distribution facilities that would result in a physical impact to the environment.

2) Result in the need for new expanded water entitlements to serve the project or are sufficient water supplies available from existing entitlements and resources.

METHODOLOGY

Evaluation of potential impacts on water facilities and services was based on consultation with City staff and review of City documents. A major source of information was the Orland Water System Master Plan prepared in 2004 by Rolls Anderson and Rolls. Other sources included survey forms completed by City staff and returned to PMC in 2007, as well as correspondence with City staff.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Water Treatment and Distribution Facilities

Impact 4.12.1.1 Implementation of the proposed General Plan would result in the need for additional treatment capacity, storage capacity, and other conveyance facilities to meet the projected water demands. This is considered to be a **potentially significant** impact.

As stated above, Orland's primary water system, Public Water System 1110001, consists of six wells distributed throughout the City. The proposed General Plan would allow urban development in areas currently used for agriculture or that are otherwise undeveloped. To serve the new development, water lines would need to be installed or extended. Additional wells and water treatment facilities would also be necessary. Additional water infrastructure also may be necessary to serve currently undeveloped areas within the city limits. The City is investigating the possibility of either rehabilitating or replacing the elevated tank. The expansion and development of new water infrastructure facilities could result in physical effects to the environment. Additional water extraction from groundwater may also result in physical effects to the environment. The City Engineer has indicated that, should Orland grow to the west, a new well would probably be required on the west side of the freeway. The City's Water System Master Plan recommended that the existing source capacity be increased by a minimum of 620 gpm from 6,430 to 7,050 gpm to meet the combined maximum daily demand plus fire flow demand.

Future water infrastructure projects would be reviewed for compliance with CEQA on a project-by-project basis.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Land Use Element: Policy 2.2.B, Program 2.2.B.1

Open Space, Conservation, and Public Facilities Element: Policy 5.7.B, Program 5.7.B.1, Program 5.7.B.2

Policy 2.2.B and Program 2.2.B.1 seek to develop a land use pattern that minimizes the expenditure of public funds for infrastructure. This would be achieved by identifying existing facilities and infrastructure and using this information to develop a land use pattern that maximizes this infrastructure. Policy 5.7.B promotes the efficient use of water within the Planning Area, which would be achieved by promoting the use of water-conserving devices for new construction and major renovations (Program 5.7.B.1). Program 5.7.B.2 requires new development to fund its fair share portion of its impacts to all water supply-related services and facilities. Furthermore, the following mitigation measure shall be implemented.

Mitigation Measures

MM 4.12.1.1a The following mitigation measure shall be added as a policy in the Land Use Element under Goal 2.1 of the proposed General Plan.

The City shall ensure the development of public infrastructure to meet the long-term needs of residents and ensure infrastructure is available at the time such facilities are needed.

MM 4.12.1.1b The following measures shall be added as programs under the preceding proposed policy.

- Require sufficient capacity in all public facilities to maintain desired service levels and avoid capacity shortages or other negative effects on safety and quality of life.

- Continue to implement the City's adopted sewer, stormwater, and water master plans to ensure the development of public facilities in a logical manner that encourages the orderly development of roadways, water and sewer, and other public facilities.

MM 4.12.1.1c The following mitigation measure shall be added as a policy in the Open Space, Conservation, and Public Facilities Element under Goal 5.7 of the proposed General Plan:

The City shall ensure that water supply and delivery systems are available to meet the demand created by new development.

MM 4.12.1.1d The following measures shall be added as programs under the preceding proposed policy.

- Require all development projects, excluding subdivisions, to adhere to the following provisions:

  – An assured water supply and delivery system shall be available at the time of project approval. The Orland Public Water Service may provide several alternative methods of supply and/or delivery, provided that each is capable individually of providing water to the project.

  – All required water infrastructure for the project shall be in place prior to project or unit occupancy, or shall be assured through the use of bonds or other financial sureties to the City's satisfaction. Water infrastructure may be phased to coincide with the phased development of large-scale projects.

- Require all subdivision developments to adhere to the following provisions:

  – Proposed water supply and delivery systems shall be identified at the time of tentative map approval, to the satisfaction of the City. The Orland Public Water System may provide several alternative methods

of supply and/or delivery, provided that each is capable individually of providing water to the project.

- All new development shall demonstrate prior to the approval of the Final Map that sufficient capacity will be available to accommodate the subdivision plus existing developments, other approved projects in the same service area, and other projects which have received commitments for water service.

- Off-site and on-site water infrastructure sufficient to provide adequate water to the subdivision shall be in place prior to the approval of the Final Map or infrastructure financing shall be assured to the satisfaction of the City, consistent with the requirements of the Subdivision Map Act.

- Off-site and on-site water distribution systems required to serve the subdivision shall be in place and shall contain water at sufficient quality, quantity, and pressure, prior to the issuance of any building permits. Model homes may be exempted from this policy as determined appropriate by, and subject to approval of, the City.

Implementation of the proposed General Plan policies and programs listed above as well as mitigation measures **MM 4.12.1.1a** through **MM 4.12.1.1d** would ensure that water supply needs are met in a timely, efficient, and logical manner by requiring that the City demonstrate that sufficient capacity and delivery system capabilities are available to support new development in conjunction with existing development. Therefore, implementation of the proposed General Plan would result in water service-related impacts that are considered **less than significant**.

Water Demand

Impact 4.12.1.2 Implementation of the proposed General Plan would increase demand on existing water supplies. This is considered to be a **potentially significant** impact.

The proposed General Plan would allow for additional residential, commercial, and industrial development. All these land uses would require additional water supplies. Currently, the City's water system can meet the demand by its customers. However, increased demand would require more pumping from the City's wells, and additional wells may need to be drilled, as the aquifer system underlying Orland supplies the municipal and agricultural water demands of the City. The Colusa Subbasin, which supplies the City, shows an average seasonal fluctuation of approximately 5 feet for normal and dry years. Despite seasonal variations, long-term groundwater levels of the Colusa Subbasin have remained relatively constant. The estimated storage capacity to a depth of 200 feet is approximately 13,025,887 acre-feet and estimates of groundwater extraction for agricultural, municipal and industrial, and environmental wetland uses are 310,000; 14,000; and 22,000 acre-feet, respectively (DWR, 2006). The Department of Water Resources has not identified the Colusa Subbasin as overdrafted in its DWR Bulletin 118. Also, there has been no indication of any existing or anticipated overdraft condition in studies prepared by other entities (DWR, 2006). The discussion of groundwater supply is addressed under Impact 4.7.2 in Section 4.7, Hydrology and Water Quality.

The population growth estimates (defined in Section 4.0 of this Draft Environmental Impact Report) identify that the 2028 population of the City of Orland will be 12,286, for which the City

will need to provide adequate water supply. According to the Water System Master Plan, the maximum daily demand in the year 2020 will be approximately 6,470 gallons per minute (gpm). The existing source capacity of approximately 6,430 gpm would nearly meet the maximum daily demand if all City wells were operational, but would not meet the maximum hour demand or the maximum daily demand with coincident fire flow demand. Additional source capacity of approximately 2,540 gpm will be needed by the year 2020. Based on this data in the Water System Master Plan, which presents City water demand through the year 2020, the projected source capacity need over the proposed General Plan timeline will be approximately 2,982 gpm by the year 2028. As new development occurs during the planning period, new wells will be a requirement and responsibility of the proposed development.

Based upon Department of Health Services (DHS) methodology of using 1.31 gpm per service connection and a peak hour of the maximum day demand factor of 1.50, the existing source capacity of 6,430 gpm will serve a total of 3,272 water service connections, or an additional 709 water service connections. Assuming 2.50 persons per water service connection, Orland's population can increase by 1,773 persons to a total city population of 8,110 persons before additional source capacity is required by DHS. Based on this occupancy factor of 2.50 persons per water service connection and a City population of 12,286 residents, Orland will have approximately 4,914 active water service connections by 2028.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, and Public Facilities Element: Policy 5.6.E, Policy 5.7.B, Program 5.7.B.1, Program 5.7.B.2

Policy 5.6.E encourages conservation of water, as well as minimizing costs associated with pumping and delivery systems. Policy 5.7.B promotes the efficient use of water within the Planning Area, which would be achieved by promoting the use of water-conserving devices for new construction and major renovations (Program 5.7.B.1). Program 5.7.B.2 requires new development to fund its fair share portion of its impacts to all water supply-related services and facilities.

Implementation of the proposed General Plan policies and programs listed above as well as mitigation measures **MM 4.12.1.1a** through **MM 4.12.1.1d**, as discussed under Impact 4.12.1.1, would ensure that sufficient water capacity is available to support new development in conjunction with existing development. Therefore, implementation of the proposed General Plan would result in water demand-related impacts that are considered **less than significant**.

Mitigation Measures

None required.

4.12.1.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for water supply includes all of the Orland Planning Area. Potential future development of this area would also result in cumulative demand for water resources and associated facilities.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Water Service Impacts

Impact 4.12.1.3 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the Planning Area, contributing to the cumulative demand for water resources and associated facilities. As a result, additional water supply resources would be required. This is considered a **cumulatively considerable** impact.

Buildout of the proposed General Plan could increase the population of the City to 46,513 residents. The California Water Plan estimates that internal per capita use of water is approximately 80 gallons per person per day which, at full buildout, would increase the water need to a total 3,721,040 gallons per day for internal (non-irrigation) use. Irrigation needs could increase the water demand by another 40 gallons per person per day or more.[1] These needs could result in demand for another 1,860,520 gallons per day for a rough total of over 5.5 million gallons per day. This equates to approximately 17 acre-feet per day, or approximately 6,205 acre-feet per year.

As discussed in Section 4.0, Introduction to the Environmental Analysis and Assumptions Used, full buildout of the proposed General Plan is a mathematical calculation and very unlikely to occur within the 2028 planning horizon. However, at such time as buildout condition occurs, implementation of the proposed General Plan policies and programs listed under Impact 4.12.1.1 along with mitigation measures **MM 4.12.1.1a** through **MM 4.12.1.1d** would ensure that there is adequate water supply and facilities available. The contribution of the proposed General Plan to cumulative impacts on water supply would be reduced to a level which is considered **less than cumulatively considerable**.

Mitigation Measures

None required.

4.12.2 WASTEWATER SERVICE

4.12.2.1 EXISTING SETTING

Domestic wastewater is generated through the use of toilets, urinals, bathroom sinks, showers and bathtubs, kitchen sinks, garbage disposals, dishwashers, and washing machines. Wastewater from toilets and urinals is often referred to as black water while the other types of wastewater from residential buildings are often called grey water. Wastewater contains dissolved organic and inorganic materials, suspended solids, and microorganisms, including bacteria and viruses. Other important characteristics to consider include the amount or flow of wastewater produced, the type of treatment provided by on-site or centralized treatment plants, and the amount and type of pollutant loadings contained in wastewater as it exits the treatment system.

[1] Record and Internet search for a per capita water consumption figure provided a wide range of numbers depending on geographic area, climate, housing type and density. These figures, taken from the California Water Plan, were used because they divided the overall 'per capita' figure into internal/external figures.

Orland provides wastewater collection and treatment services to all of its residents within the city limits. Land uses in other unincorporated portions of the proposed Planning Area rely on individual septic systems for wastewater disposal. These systems are known as on-site wastewater treatment systems (OWTS). OWTS are either connected to individual residences and non-residential buildings in areas not served by a wastewater collection system, or they are small, community collection and disposal systems that also rely upon septic tanks and on-site, underground disposal using leach fields and other types of soil absorption systems.

EXISTING WASTEWATER FACILITIES

The City wastewater collection and treatment system comprises an extensive collection system and four sewage treatment ponds. Treated effluent from the treatment facility is discharged to a 50-acre parcel.

All sewage that is generated inside of the city limits is collected and treated by the Orland Wastewater Collection and Treatment Facility (WCTF). Areas immediately surrounding Haigh Field are also served by the WCTF. Other than Haigh Field, areas outside of the city limits are treated by private on-site septic systems. The treatment facility utilizes a primary treatment process consisting of a bar-screen located at the headworks building with screened effluent being disposed into a rotating series of four sewage disposal ponds located west of the airport. These four primary settling ponds, along with two specially lined and isolated brine ponds, are located on a 50-acre City-owned parcel of land. **Figure 4.12.2-1** illustrates the existing sewer infrastructure in the City.

The WCTF is currently operating under Waste Discharge Requirements Order No. 96-129 which was adopted by the Regional Water Quality Control Board (RWQCB), Central Valley Region on May 3, 1996. According to the City Engineer, the permit is valid until RWQCB says it needs to be updated, which is usually dependent upon plant expansion of capacity (Skillman, 2007). The City's Waste Discharge Requirements indicate that the design capacity in 1996 for the four stabilization ponds and disposal field was 2.1 million gallons per day (mgd), with an average domestic wastewater flow of 1.3 mgd.

According to the City Engineer, the City's WCTF currently has an average flow of 0.72 mgd, with a peak flow of 1.24 mgd. The capacity of the collection system is 3.4 mgd (based on peak flow) and the capacity of the WCTF is 2.1 mgd (based on average flows). Based on these numbers, the system is currently operating at about 36 percent of capacity (Skillman, 2007).

The City recently completed improvements to the WCTF, which increased the usable percolation area receiving effluent discharge from the ponds. City Engineer Ken Skillman stated that there are not any major problems with the collection system (i.e., root intrusion).

Population projections for Orland predict that by 2028 (the life of the proposed General Plan), the population will be 12,286. The wastewater treatment plant can support a population of approximately 12,000. Projected 2028 demand exceeds current estimated wastewater treatment capacity. A Wastewater Master Plan was adopted for the City in 2009.

4.12.2.2 REGULATORY FRAMEWORK

FEDERAL

Clean Water Act

In 1972, the Clean Water Act (CWA) was adopted to protect the waters of the nation. The U.S. Environmental Protection Agency (USEPA) and corresponding state agencies regulate public wastewater systems to ensure compliance with the CWA. To implement the CWA regulatory standards, the National Pollutant Discharge Elimination System (NPDES) Permit Program was instituted.

The CWA requires that all point sources discharging pollutants into waters of the United States must obtain a NPDES permit. By point sources, USEPA means discrete conveyances such as pipes or man-made ditches. Although individual households do not need permits, facilities must obtain permits if their discharges go directly to surface waters. Some pollutants that may threaten public health and the nation's waters are human wastes, ground-up food from sink disposals, laundry and bath waters, toxic chemicals, oil and grease, metals, and pesticides.

National Pollutant Discharge Elimination System Permit

Discharge of treated wastewater to surface water(s) of the United States, including wetlands, requires a National Pollutant Discharge Elimination System Permit. In California, the Regional Water Quality Control Boards (RWQCBs) administer the issuance of these federal permits. Obtaining an NPDES permit requires preparation of detailed information, including characterization of wastewater sources, treatment processes, and effluent quality. Whether or not a permit may be issued and the conditions of a permit are subject to many factors such as Basin Plan water quality objectives, impaired water body status of the receiving water, historical flow rates of the receiving water, effluent quality and flow, the State Implementation Plan (SIP) and the California Toxics Rule (CTR), and established total maximum daily loading (TMDL) rates for various pollutants. These factors are highly specific to the potential discharge point. Obtaining an NPDES permit is generally considered difficult in inland areas and may not be possible in sensitive areas.

STATE

Regional Water Quality Control Board – Waste Discharge Requirements

A Waste Discharge Requirement (WDR) permit is typically required for any facility that discharges or proposes to discharge waste that may affect the quality of waters of the state. This may include systems that have waste storage systems with land disposal, such as seasonal storage and reuse. Potential dischargers must file a complete Report on Waste Discharge with the RWQCB at least 120 days prior to discharging waste. In addition, a Report on Waste Discharge must be submitted for on-site septic systems at residential subdivisions of over 100 homes. Issuance of a WDR permit is based on information provided in the Report on Waste Discharge. A WDR permit may set effluent standards for activities that do not pose a threat or nuisance to water quality.

LOCAL

Glenn County Environmental Health Department

For land uses in the unincorporated portions of the proposed Planning Area which rely on individual septic systems for wastewater disposal, the Glenn County Environmental Health Department provides oversight. The siting, design, and construction of new septic systems and the repair and modification of existing septic systems for wastewater disposal must be in accordance with current standards of the Glenn County Sewage Disposal Regulations and criteria of the Central Valley Regional Water Quality Control Board.

4.12.2.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The following standards are based on State CEQA Guidelines Appendix G. A significant impact to wastewater service would occur if implementation of the proposed General Plan would result in the following:

1) Project exceeds wastewater treatment requirement of the applicable Regional Water Quality Control Board.

2) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

3) A determination by the wastewater treatment provider, which serves or may serve the project, that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

METHODOLOGY

Evaluation of potential impacts on wastewater facilities and services was based on consultation with City staff and review of City documents, including survey forms completed by City staff and returned to PMC in 2008, and correspondence with the City Engineer.

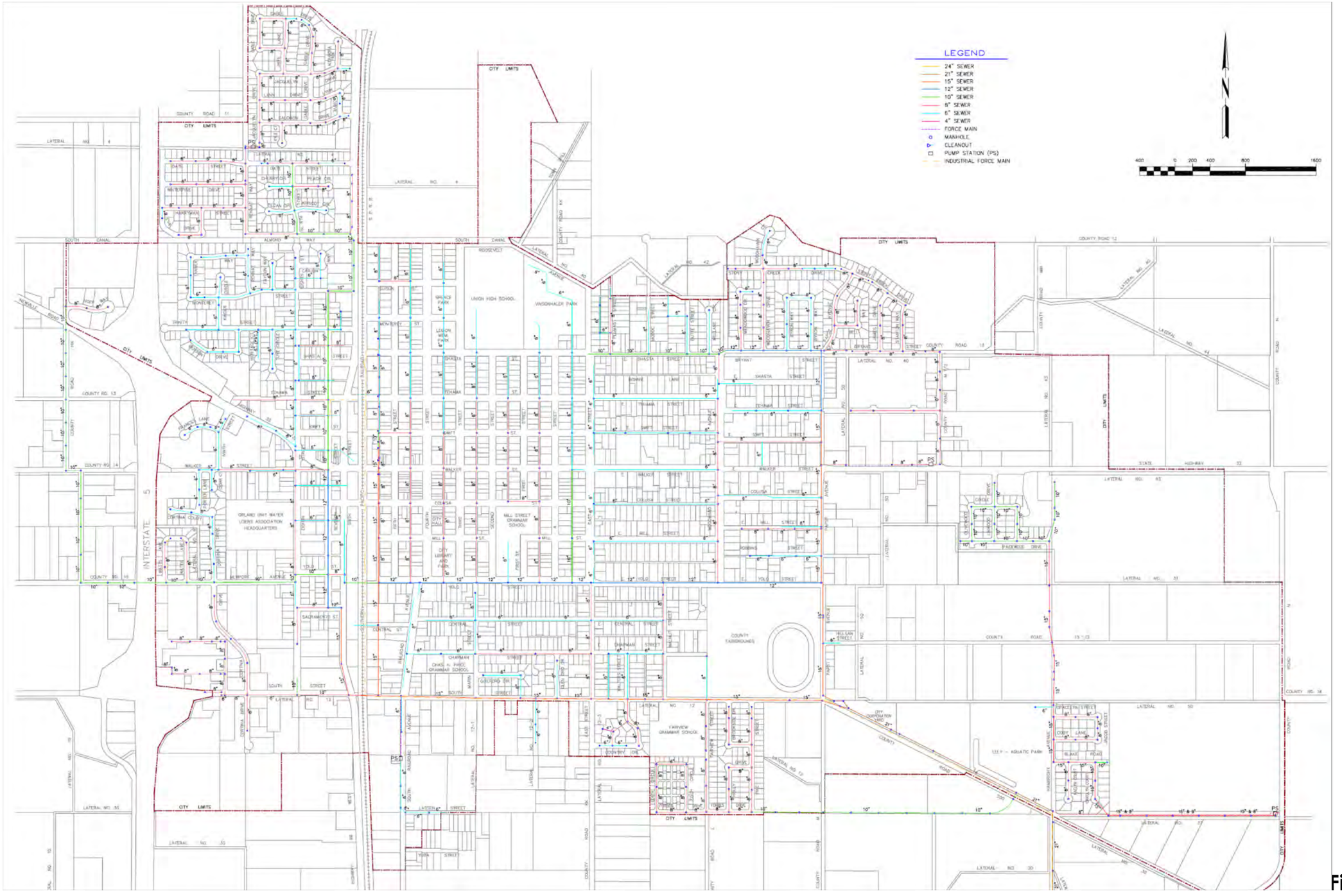


Figure 4.12.2-1

Sewer System

PMC®

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Wastewater Capacity, Conveyance, and Treatment

Impact 4.12.2.1 Implementation of the proposed General Plan would substantially increase wastewater flows and require additional infrastructure and may require additional treatment capacity to accommodate anticipated demands that would result in a physical effect on the environment. This impact is considered **potentially significant**.

Increased development associated with implementation of the proposed General Plan would increase the amount of wastewater generated. Implementation of the proposed project would require additional treatment capacity to serve development under the proposed General Plan. This means a larger amount of wastewater would need to be treated at the City's WCTF, which could significantly exceed the WCTF's currently allowed treatment capacity. Expansion of the WCTF would be necessary to serve projected development.

Potential environmental effects associated with the expansion of the City's WCTF include, but are not limited to, construction and operational air quality and noise effects, biological resource impacts to protected habitat, geologic and hydrologic impacts from construction and operation, and growth inducement. These environmental effects would likely occur at the existing WCTF site as well as at off-site facilities such as reclamation facilities. However, no specific facility expansion designs have been developed to date that would further specify the potential environmental effects.

As stated above, the City's WCTF currently has an average flow of 0.72 mgd, with a peak flow of 1.24 mgd. The capacity of the collection system is 3.4 mgd (based on peak flow) and the capacity of the WCTF is 2.1 mgd (based on average flows). Based on these numbers, the system is currently operating at about 36 percent of capacity.

Population projections for Orland predict that by 2028 (the life of the proposed General Plan), the population will be 12,286. The wastewater treatment plant can support a population of approximately 12,000.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Land Use Element: Policy 2.2.B, Program 2.2.B.1

Open Space, Conservation, and Public Facilities Element: Policy 5.8.A, Program 5.8.A.2, Program 5.8.A.3, Program 5.8.A.4, Policy 5.8.B, Program 5.8.B.1, Policy 5.8.C, Program 5.8.C.1

Policy 2.2.B and Program 2.2.B.1 seek to develop a land use pattern that minimizes the expenditure of public funds for infrastructure. This would be achieved by identifying existing facilities and infrastructure and using this information to develop a land use pattern that maximizes this infrastructure. Policy 5.8.A would ensure that adequate wastewater collection and treatment would be maintained for both existing and new development. Programs 5.8.A.2 and 5.8.A.4 would establish development impact fees as one source of funding capital improvements and include an analysis to determine the adequacy of fees to fund improvements. Program 5.8.A.3 would provide periodic review of the Wastewater Master Plan that identifies necessary improvements and their scheduling as well as development impact fees to provide funding. Policy 5.8.B requires all sewage generators within the city limits to connect to the City's system, except in those areas where on-site treatment and disposal facilities are

deemed appropriate and beneficial to the City. Program 5.8.B.1 requires the City to update its Municipal Code and Public Works Improvement Standards to incorporate Policy 5.8.B. Policy 5.8.C requires that collection systems be designed on a gravity-flow basis except where a site-specific engineering analysis clearly demonstrates the long-term cost-effectiveness of pumped facilities or the infeasibility for gravity flow. Program 5.8.C.1 requires the City to update its Public Works Improvement Standards to incorporate Policy 5.8.C.

Mitigation Measures

MM 4.12.2.1 The following mitigation measure shall be added as a program under Policy 5.8.A of the proposed General Plan.

Require all subdivision developments to adhere to the following provisions, to the extent permitted by state law:

- All future development shall demonstrate prior to the approval of any Final Map by the City that sufficient treatment capacity is or will be available to accommodate the subdivision.
- On-site and off-site sewage conveyance systems required to serve all future development shall be in place prior to the approval of occupancy permits, or their financing shall be assured to the satisfaction of the City, consistent with the requirements of the Subdivision Map Act.

Implementation of the proposed General Plan policies and programs described above, as well as mitigation measures **MM 4.12.1.1a** and **MM 4.12.2.1**, would ensure the completion of required improvements to the City's wastewater treatment facilities as development occurs. Impacts after implementation would be **less than significant**.

4.12.2.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for wastewater service includes all of the Orland Planning Area. Potential future development of these areas would also result in cumulative demand for wastewater services and associated facilities.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Wastewater Service Impacts

Impact 4.12.2.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the Planning Area, contributing to the cumulative demand for wastewater services and associated facilities. As a result, additional wastewater service resources would be required. This is considered a **cumulatively considerable** impact.

Buildout of the proposed General Plan could increase the population of the City to 46,513 residents. The capacity of the collection system is 3.4 mgd (based on peak flow) and the capacity of the WCTF is 2.1 mgd (based on average flows). Based on these numbers, the system is currently operating at about 36 percent of capacity. Potential development constructed as a

result of implementation of the proposed General Plan land use designations would substantially increase cumulative demands for wastewater services and related facilities. The contribution of growth under the proposed General Plan would likely trigger the need for new wastewater conveyance and treatment systems. The physical effects of constructing new trunk systems and treatment facilities will be analyzed by the City in separate environmental documents. All new development projects are required to pay development impact fees and construct necessary wastewater improvements to ensure adequate financing. Potential environmental effects associated with additional wastewater facility expansion include, but are not limited to, air quality, biological resource impacts to protected habitat, cultural resources (depending on location), hazardous materials, land use, noise, traffic, visual resources, waste management, water and soil resources, and health hazards.

Implementation of the proposed General Plan Land Use Element and Open Space, Conservation, and Public Facilities Element policies and associated programs listed under Impact 4.12.2.1, as well as mitigation measures **MM 4.12.1.1a** and **MM 4.12.2.1**, will assist in reducing the proposed General Plan's cumulative wastewater-related impacts. Proposed General Plan impacts to wastewater conveyance and treatment are considered to be **less than cumulatively considerable**. This conclusion is applicable to both the potential impacts that could be caused by cumulative conditions and the project's incremental effects.

Mitigation Measures

None required.

4.12.3 STORMWATER DRAINAGE

4.12.3.1 EXISTING SETTING

The City of Orland's stormwater drainage system consists primarily of surface water conveyance utilizing curbs and gutters which lead to underground drainage pipes that eventually discharge into the Lely Aquatic Pond, the Stony Creek Basin Tributary Area, or on-site retention basin and leach field systems.

Approximately 80 percent of the City's area is served by, and discharges into, the Lely Aquatic Pond. The City Engineer estimates that this pond is capable of accommodating all storm events up to and including a 50-year storm (Skillman, 2007). Storm events which exceed this return interval will cause some localized ponding of runoff throughout the City within street roadbeds. Should the groundwater table become elevated due to cumulative stormwater runoff and percolation (likely occurring in late winter through early spring), Lely Aquatic Pond's capacity decreases, thereby resulting in a situation where larger storm events may cause the pond to exceed its capacity. When this occurs, runoff flows southeasterly along East South Street (County Road 200) until it reaches the Tehama-Colusa Canal, which thereafter becomes a dike preventing further street flow.

A storm drainage overflow system was constructed at Haigh Field airport in 1992 through a Joint Powers Agreement between the City and Glenn County. The overflow piping from Lely Aquatic Pond to the airport has not yet been installed since sufficient impact fees to construct this pipeline have not been received by the City.

A majority of the residential development in Orland since 1990 has taken place in the northeast and northwest portions of Orland, and stormwater runoff from these developments has been directed into retention basins within the Stony Creek Basin Tributary Area which includes

Hambright Creek. Recent developments in Orland have utilized on-site storm drainage retention basins and/or leach line percolation systems. All drainage within the City is disposed of through percolation and/or evaporation. Additionally, due to the limited development activity west of I-5, developed storm drainage facilities do not currently exist in that area.

In 2009, the City adopted a Storm Drainage Master Plan that identifies future needs of the storm drainage system.

Strom drainage in areas outside of the city limits but within the Planning Area are within Glenn County's jurisdiction. However, no developed storm drainage system or facilities exist in Glenn County. In the areas outside of the city limits, there are on-site storm drainage retention basins and/or leach line percolation systems.

4.12.3.2 REGULATORY FRAMEWORK

FEDERAL

National Pollutant Discharge Elimination System

As described in Section 4.7, Hydrology and Water Quality, USEPA has established the National Pollutant Discharge Elimination System (NPDES) program to control pollutants discharged by various activities, including industrial operations and municipal stormwater systems. Under NPDES, a permit is required for discharges from municipal separate storm sewer systems (MS4s) and industrial operations into streams and other bodies of water. The City's stormwater drainage system currently does not require an NPDES permit, as it does not meet the criteria that would subject it to the NPDES program. Industrial activities in Orland that discharge stormwater are subject to an NPDES General Industrial Permit for such discharges.

STATE

California Department of Transportation

The California Department of Transportation (Caltrans) owns, operates, and maintains the segments of State Route 32 and Interstate 5 that pass through the proposed Planning Area. As such, Caltrans retains jurisdiction over drainage facilities associated with these road segments.

4.12.3.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, stormwater drainage service impacts are considered significant if the following could result from the implementation of the proposed General Plan:

1) 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.

2) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

METHODOLOGY

Evaluation of potential impacts on stormwater facilities and services was based on consultation with City staff and review of City documents, including survey forms completed by City staff and returned to PMC in 2008, and correspondence with City staff. The Open Space, Conservation, and Public Utilities Element of the proposed General Plan also contains background information.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Stormwater Runoff Facilities

Impact 4.12.3.1 New development would increase stormwater runoff rates generated within and downstream of the proposed General Plan Planning Area when compared with existing conditions and would require additional infrastructure to accommodate anticipated demands that would result in a physical effect on the environment. This is considered a **less than significant** impact.

Much of the precipitation that falls on natural or undeveloped land slowly infiltrates into the soil and is stored either temporarily or permanently on the surface or in underground layers of soil. When the soil becomes saturated with water or the rate of rainfall exceeds the infiltration capacity of the soil, precipitation begins to flow over the surface of the land, becoming stormwater runoff. The infiltration and runoff process is altered when a site is developed with urban uses. As impervious surfaces are added to the ground, the natural infiltration and storage processes are reduced. As a result, the volume and flow rate of stormwater runoff increases. The effect of these increases in runoff rates and volumes will be more pronounced during storms of lower magnitude and higher frequency. The increased volumes and flow rates of stormwater runoff may result in downstream flooding if not properly mitigated. Refer to Section 4.7, Hydrology and Water Quality, for further discussion on drainage and flooding impacts,

As development accommodated under the proposed General Plan would increase flow rates and volumes of runoff by introducing streets, homes/buildings, parking areas, and other impervious surfaces, development would be required to provide improved facilities for on-site drainage conveyance. Existing downstream storm drainage facilities may have insufficient capacity to accept the additional runoff generated by the additional development. Therefore, construction of stormwater detention facilities and/or downstream storm drainage conveyance facilities would be necessary to mitigate the impacts of increased runoff. The expansion and development of new stormwater infrastructure facilities could result in physical effects to the environment. Additional water extraction from groundwater may also result in physical effects to the environment.

Future stormwater drainage infrastructure projects would be reviewed for compliance with CEQA on a project-by-project basis.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Land Use Element: Policy 2.2.B, Program 2.2.B.1

Open Space, Conservation, and Public Facilities Element: Program 5.9.A.2, Program 5.9.A.3, Program 5.9.B.1, 5.9.E

Policy 2.2.B and Program 2.2.B.1 seek to develop a land use pattern that minimizes the expenditure of public funds for infrastructure. This would be achieved by identifying existing

facilities and infrastructure and using this information to develop a land use pattern that maximizes this infrastructure. Such a strategy also reduces the amount of needed new stormwater facility development. Program 5.9.A.2 seeks to coordinate zoning requirements with possible storm drainage facility design, thus potentially reducing the amount of necessary stormwater facility development and associated impacts to the environment. Program 5.9.A.3 ensures that the City will complete its Stormwater Master Plan that identifies necessary improvements and their scheduling as well as development impact fees to provide funding. Program 5.9.B.1 explores the use of pervious concrete and pavement to assist in the return of water to the regional aquifer and to assist in the management of storm drainage. The successful use of pervious concrete could potentially reduce the need for additional stormwater facility development, thus reducing physical impacts to the environment. Policy 5.9.E requires that all new development projects comprising more than 100 units shall establish a financing district to pay for the ongoing operation of existing storm drainage facilities.

Implementation of the proposed General Plan policies and programs described above, as well as mitigation measure **MM 4.12.1.1a**, will reduce the proposed General Plan's stormwater facility impacts to **less than significant**.

Mitigation Measures

None required.

4.12.3.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for stormwater drainage services includes all of the Orland Planning Area. Potential future development of these areas would also result in cumulative demand for stormwater drainage infrastructure.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Stormwater Service Impacts

Impact 4.12.3.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase development within the Planning Area, contributing to the cumulative demand for stormwater services and associated facilities. As a result, additional stormwater service resources would be required. This is considered a **less than cumulatively considerable** impact.

Buildout of the proposed General Plan could increase the population of the City to 46,513 residents. As discussed under Impact 4.12.3.1, existing downstream storm drainage facilities may have insufficient capacity to accept the additional runoff generated by the additional development. Therefore, construction of stormwater detention facilities and/or downstream storm drainage conveyance facilities would be necessary to mitigate the impacts of increased runoff. The City has adopted a Storm Drainage Master Plan that identifies future needs of the storm drainage system. Implementation of the proposed General Plan policies and programs listed under Impact 4.12.3.1 would reduce the contribution of the proposed General Plan to cumulative impacts on stormwater services to a level which is considered **less than cumulatively considerable**.

Mitigation Measures

None required.

4.12.4 SOLID WASTE SERVICE

4.12.4.1 EXISTING SETTING

Glenn County prepared the required Source Reduction and Recycling Element (SRRE) and Household Hazardous Waste Element (HHWE) in 1992. The official diversion rate for Glenn County in 2006 was 50 percent. However, Glenn County is currently working with the California Integrated Waste Management Board (CIWMB) to establish the most appropriate statistics used to calculate the rate, and it may be subject to upward revision.

Glenn County currently leases and operates a landfill located at the west end of County Road 33 off Interstate 5 in Artois. Orland residents can contract individually with Waste Management for curbside waste and recycling collection services. Orland area waste is delivered to the Glenn County Landfill by Waste Management. The County Planning and Public Works Agency estimates the remaining capacity of the Glenn County Landfill to be sufficient for three to six years.

The Glenn County Board of Supervisors recently approved a tipping fee increase which will allow the County to expand the landfill at its current site. The County plans to have the site constructed and operational prior to the closure of the current site. The new site would give the County an additional 80 to 100 years of capacity (Murphy, 2009).

4.12.4.2 REGULATORY FRAMEWORK FOR SOLID WASTE SERVICES

STATE

California Integrated Waste Management Act

The purpose of the California Integrated Waste Management Act of 1989 (also known as AB 939) is to "reduce, recycle, and re-use solid waste generated in the State to the maximum extent feasible." The term "integrated waste management" refers to the use of a variety of waste management practices to handle safely and effectively the municipal solid waste stream with the least adverse impact on human health and the environment. The act has established a waste management hierarchy, as follows:

- Source Reduction
- Recycling
- Composting
- Transformation
- Disposal

The act requires every city and county in the state to prepare a Source Reduction and Recycling Element to its Solid Waste Management Plan. This element must identify how the local jurisdiction will meet the mandatory state waste diversion goals of 25 percent by 1995 and 50 percent by 2000.

4.12.4.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

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

1) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.

2) Fails to comply with federal, state, and local statutes and regulations related to solid waste.

METHODOLOGY

Evaluation of potential impacts on solid waste services was based on consultation with City staff and review of City documents, including survey forms completed by City staff and returned to PMC in 2008, and correspondence with City staff. Another source of information was the California Integrated Waste Management Board, whose website contains the Solid Waste Information System (SWIS) database. This information provides data on landfills, including maximum permitted capacity and remaining capacity.

IMPACT AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Solid Waste Disposal Demand

Impact 4.12.4.1 Implementation of the proposed General Plan would increase solid waste generation and the demand for related services. This is considered a **potentially significant** impact.

The land uses associated with the proposed General Plan include residential, commercial, and industrial designations, which would increase solid waste generation over existing conditions. Implementation of the proposed General Plan could result in the construction of 2,643 new dwelling units within the City by the year 2028 for a total of 4,433 dwelling units, and an additional 4,933 people for a total 2028 population of 12,286. This is based upon the high growth rate of 2.6 percent for the calculation of population and housing units projections discussed in Section 4.0, Introduction to the Environmental Analysis and Assumptions Used. Assuming that each person generates 0.27 tons of solid waste each year, as established by the California Integrated Waste Management Board (CIWMB), implementation of the proposed General Plan would create an additional 1,332 tons of solid waste per year over existing conditions (4,933 x 0.27 = 1,332) for a total of 3,317 tons of solid waste per year (12,286 x 0.27 = 3,317). Assuming that each person generates 1.5 pounds of solid waste per day (CIWMB), implementation of the proposed General Plan would result in approximately 18,429 total pounds (9 tons) per day of solid waste.

Most of the additional solid waste would likely be disposed of at the Glenn County Landfill near the unincorporated area of Artois. The current residential solid waste load from the entirety of Glenn County (63 tons per day) is 63 percent of the permitted throughput.

A tipping fee increase recently approved by the Glenn County Board of Supervisors will allow the County to expand the landfill at its current site, giving the County an additional 80 to 100 years of capacity.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

There are currently no policies or programs in the General Plan related to solid waste.

Mitigation Measures

MM 4.12.4.1a The following mitigation measure shall be incorporated as a goal in the proposed City of Orland General Plan Safety Element under Goal 4.7.

The City shall provide for solid waste collection, disposal services, and recycling in a cost-efficient manner.

MM 4.12.4.1b The following measures shall be incorporated as policies under the preceding goal.

- Continue contracting for garbage and recycling collection services.
- Develop guidelines and standards for mandatory recycling (AB 939) and organize solid waste disposal in new large-scale developments.

MM 4.12.4.1c The following mitigation measure shall be incorporated as a goal in the proposed City of Orland General Plan Safety Element under Goal 4.7.

Solid waste collection, handling, recycling, composting, recovery, transfer and disposal fees shall recover all capital, operating, and maintenance costs associated with the City solid waste program.

MM 4.12.4.1d The following measures shall be incorporated as policies under the preceding goal.

- Develop and continually monitor a solid waste disposal fee system based on the quantity of waste set out for disposal and provide incentives for recovery.
- Explore available alternatives for the establishment of a fiscally-viable citywide household recycling program.

Implementation of the above policies support a sustainable solid waste service by implementing a disposal fee system while also encouraging recycling, which would assist in reducing the solid waste stream, thereby reducing demand on landfill capacity, and would ensure adequate provision of solid waste services. Impacts would be **less than significant**.

4.12.4.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for solid waste services includes all of the Orland Planning Area. Potential future development of these areas would also result in cumulative demand for solid waste services and associated facilities.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Solid Waste Service Impacts

Impact 4.12.4.2 Implementation of the proposed General Plan would generate solid waste that would require expanded collection and disposal services. This is considered a **cumulatively considerable** impact.

Buildout of the proposed General Plan could increase the population of the City to 46,513 residents and produce 16,419 dwelling units. Based on the existing population of 7,353 and assuming that each person generates 0.27 tons of solid waste each year, as established by the California Integrated Waste Management Board (CIWMB), buildout of the proposed General Plan would create an additional 10,573 tons of solid waste per year over existing conditions (39,160 x 0.27 = 10,573) for a total of 12,559 tons of solid waste per year (46,513 x 0.27 = 12,559). Assuming that each person generates 1.5 pounds of solid waste per day (CIWMB), buildout of the proposed General Plan would result in approximately 69,800 total pounds per day of solid waste. Implementation of the proposed General Plan goals and policies listed under Impact 4.12.4.1, along with mitigation measures **MM 4.12.4.1a** through **MM 4.12.4.1d**, would reduce the contribution of the proposed General Plan to cumulative impacts on solid waste services to a level which is considered **less than cumulatively considerable**.

Mitigation Measures

None required.

4.12.5 ENERGY AND COMMUNICATION SERVICES



Private companies operate most energy and communication services. Energy companies provide electricity, natural gas, and other energy sources. Communication companies provide services such as telephone, Internet access, and television. These companies operate in specific territories that cover many states. All the companies discussed in this section provide service within both the City of Orland and the unincorporated portion of the proposed Planning Area.

4.12.5.1 EXISTING SETTING

ENERGY

Pacific Gas and Electric Company (PG&E) provides electrical and natural gas service to the City of Orland and the proposed Planning Area. A private utility, PG&E has a service area that covers most of northern and central California. PG&E generates electric power from many sources, including hydroelectric powerhouses, a nuclear power plant (Diablo Canyon), and a few small fossil-fired power plants. PG&E also purchases power from independent power producers; generation sources from these producers can range from large fossil power plants to smaller renewable and cogeneration plants. After the power is produced or bought, it goes into PG&E's electric transmission and distribution systems to get to the homes and businesses of PG&E's customers.

Infrastructure to deliver electricity and natural gas is currently in place. PG&E generally can provide these services to newer development on request. However, Orland residents outside the city limits may also heat their residences using propane, generally stored in individual tanks and delivered by propane companies.

COMMUNICATION SERVICES

SBC, formerly AT&T, provides local telephone service to the proposed Planning Area. Several private companies provide long distance telephone services. Consumers can select the company that provides long distance service. Telephone facilities include both aerial and underground fiber and copper transmission lines. Both local and long distance companies utilize these lines. Generally, telephone companies can provide service to those willing to pay for them.

Several private companies provide access to the Internet, through either dial-up or broadband. Dial-up services utilize the telephone lines within the proposed Planning Area. Broadband services use telephone lines (DSL), cable television lines, or electronic waves (wireless). As with telephone services, Internet service providers generally can provide service to customers willing to pay, provided the customers have the necessary equipment for the type of service requested.

Comcast provides cable television services for the City of Orland. Infrastructure for cable television services is installed within the city limits. Outside the cable television service area, residents and other customers may use satellite television, an option also available to City residents. As with other private utilities, cable and satellite television providers generally can extend service to paying customers.

4.12.5.2 REGULATORY FRAMEWORK

STATE

The California Public Utilities Commission (PUC) is the primary state agency that regulates private utilities. These utilities include telecommunications, electricity, natural gas, water, railroad, rail transit, and passenger transportation companies. A primary role of the PUC is to authorize utility rate changes. It also establishes service standards and safety rules, monitors the safety of utility and transportation operations, prosecutes unlawful marketing and billing activities, and oversees the merger and restructure of utility corporations.

Senate Bill (SB) 1389

Senate Bill 1389 (SB 1389) requires the California Energy Commission (CEC) to conduct "assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices." The CEC reports the results of these assessments and forecasts every two years to the Governor, the Legislature, and the California public in the Integrated Energy Policy Report.

Title 20 and Title 24, California Code of Regulations

New buildings constructed in California must comply with the standards contained in Title 20, Energy Building Regulations, and Title 24, Energy Conservation Standards, of the CCR. Title 24 (AB 970) also contains energy efficiency standards for residential and nonresidential buildings based on a state mandate to reduce California's energy demand. After adoption of the California Energy Security and Reliability Act of 2000 (AB 970), the California Energy Commission produced changes to the Building Energy Efficiency Standards. In November 2003, the California Energy Commission adopted these updated standards. The California Building Standards Commission adopted the 2005 changes in July 2003 and the updated standards took effect on October 1, 2005.

Warren-Alquist Energy Resources Conservation and Development Act

The State Energy Commission regulates energy resources by encouraging and coordinating research into energy supply and demand problems to reduce the rate of growth of energy consumption (Warren-Alquist Energy Resources Conservation and Development Act Government Code section 25000 et seq.).

California Building Energy Efficiency Standards

Title 24, Part 6 of the California Code of Regulations, known as the Building Energy Efficiency Standards, was established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. After adoption of the California Energy Security and Reliability Act of 2000 (AB 970), the California Energy Commission produced changes to the Building Energy Efficiency Standards. In November 2003 the California Energy Commission adopted these updated standards. The California Building Standards Commission adopted the 2005 changes in July 2003 and the updated standards took effect on October 1, 2005.

4.12.5.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Utilities impacts are considered to be significant if the following could result from the implementation of the proposed General Plan:

1) Result in the need for new facilities, or a substantial expansion or alteration to existing energy and communication systems, the construction of which would result in significant environmental effects.

2) Result in the need for new supplies of energy, the development or acquisition of which would result in significant environmental effects.

METHODOLOGY

Evaluation of potential impacts on electrical, natural gas, and telephone services was based on review of public documents and research of the websites of the utilities.

IMPACT AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Electrical, Natural Gas, and Communication

Impact 4.12.5.1 Implementation of the proposed General Plan would substantially increase demand for electrical, natural gas, telephone, and related infrastructure. This is considered a **less than significant** impact.

Electrical service infrastructure extensions would be required to serve development proposed under the proposed General Plan, which may include additional substations, distribution lines, and transmission lines. New substations would require new transmission lines, new transmission poles, and other related distribution facilities. The extension of natural gas infrastructure would also be required to accommodate the development proposed under the proposed General Plan. Natural gas infrastructure would be extended to proposed development. Typically natural gas pipelines are located within road or utility rights-of-ways. Locating pipelines within existing rights-of-way would eliminate potential environmental impacts resulting from new trenches. Implementation of the proposed General Plan would also require the extension of telephone infrastructure within the General Plan area.

New developments generally provide the required infrastructure to connect to these systems or provide easements within which the necessary infrastructure can be installed. In general, new utility lines can be installed with little problem. However, installation of new facilities could have potentially significant environmental impacts. Future energy and communications infrastructure projects would be reviewed for compliance with CEQA on a project-by-project basis.

Consumption and Conservation

The land uses associated with the proposed General Plan include residential, commercial, and industrial designations, which would increase solid waste generation over existing conditions. Implementation of the proposed General Plan could result in the construction of 2,643 new dwelling units within the City by the year 2028 for a total of 4,433 dwelling units, and an additional 4,933 people for a total 2028 population of 12,286. Construction of this anticipated development would involve the use of heavy construction equipment and power tools as well as the creation of additional vehicle trips for materials deliveries and worker commutes. These activities would require the intermittent consumption of fuels and electricity as individual development projects proceed throughout the Planning Area over the next 20 years. The operation of the anticipated development would result in regular and ongoing consumption of electricity and natural gas to light, heat and cool homes and businesses as well as the consumption of fuels related to increased vehicle miles traveled (VMT).

As discussed above, PG&E has the capacity to provide electric service to the anticipated future development within the Planning Area with minimal expansion of infrastructure. PG&E generates electric power from many sources, including hydroelectric powerhouses, a nuclear power plant (Diablo Canyon), and a few small fossil-fired power plants. PG&E also purchases power from independent power producers; generation sources from these producers can range from large fossil power plants to smaller renewable and cogeneration plants. After the power is

produced or bought, it goes into PG&E's electric transmission and distribution systems to get to the homes and businesses of PG&E's customers.

The U.S. EPA provides a general overview of the various environmental effects of major sources of electricity including natural gas, oil, coal, geothermal, and hydroelectric. These effects are summarized in **Table 4.12-2** below.

TABLE 4.12-3
POTENTIAL ENVIRONMENTAL EFFECTS ASSOCIATED WITH ENERGY USE

Energy Source	Environmental Issue Area	Potential Environmental Affects
Natural Gas	Air Quality	The burning of natural gas for energy production results in the emission of nitrogen oxides and carbon dioxide as well as methane if not burned completely or if leaks occur. Each of these gases is considered a greenhouse gas (GHG) and contributes to global climate change.
	Hydrology and Water Quality	Boilers and other equipment require large quantities of water for cooling, the use of which could have affects on overall water supply, surface and groundwater hydrology and associated biological resources. In addition, water used in gas boilers and cycle systems can become heated and polluted and are often discharged to surface waters.
	Land Resources	The extraction of natural gas and the construction of natural gas power plants and distribution lines can destroy natural habitat and result in erosion, loss of soil productivity, and landslides.
Oil	Air Quality	The burning of oil for energy production results in the emission of nitrogen oxides, sulfur dioxide, carbon dioxide, methane, and mercury compounds. Such emissions contribute to the formation of ground level ozone or smog and to global climate change. In addition, oil wells and oil collection equipment are also a source of emissions of methane and the large engines that are used in the oil drilling, production, and transportation processes burn natural gas or diesel that also produce emissions.
	Hydrology and Water Quality	Oil-fired power plants use large quantities of water for steam production and cooling, the use of which could have affects on overall water supply, surface and groundwater hydrology and associated biological resources. The drilling of oil requires water to remove obstructions from the well, and refineries require water in the various processes used to refine crude oil into usable fuel. In addition, refineries and power plants release water that may contain pollutants and be heated. Drilling and runoff can also cause contamination of groundwater and surface water sources, respectively. Finally, oil spills can occur during transportation potentially damaging water quality and harming marine life.
	Solid Waste	Oil refining produces wastewater sludge and other solid wastes that can contain high levels of metals and toxic compounds and that may require special handling, treatment, and disposal. Also, when oil is burned at power plants, residues that are not completely burned can accumulate, forming another source of solid waste that must be disposed.
	Land Resources	The construction of large oil-fired power plants can destroy habitats for animals and plants. Waste products from refining and from power plants (such as wastewater sludge and residues) can cause land contamination if not properly disposed. In addition, when oil spills occur on land, soils are degraded.
Coal	Air Quality	The burning of coal for energy production results in the emission of carbon dioxide, sulfur dioxide, nitrogen oxides, and mercury compounds contributing to air pollution and global climate change. Mining, cleaning, and transporting coal to

Energy Source	Environmental Issue Area	Potential Environmental Affects
		power plants generate additional emissions, including methane.
	Hydrology and Water Quality	Large quantities of water are frequently needed to remove impurities from coal at the mine and for steam production and cooling at power plants which can have affects on overall water supply, surface and groundwater hydrology and associated biological resources. In addition, power plant boilers and cooling systems may release water to surface waters that contains pollutants and is heated. If rain falls on coal stored in piles outside power plants, the water that runs off these piles can flush heavy metals from the coal, such as arsenic and lead, into nearby water bodies. Coal mining can also contaminate bodies of water with heavy metals when the water used to clean the coal is discharge back into the environment.
	Solid Waste	The burning of coal creates solid waste, called ash, which is composed primarily of metal oxides and alkali. Solid waste is also created at coal mines when coal is cleaned and at power plants when air pollutants are removed from the stack gas. Much of this waste is deposited in landfills and abandoned mines, although some amounts are now being recycled into useful products, such as cement and building materials.
	Land Resources	Soil at coal-fired power plant sites can become contaminated with various pollutants from the coal and take a long time to recover, even after the power plant closes. Coal mining and processing also have environmental impacts on land. Surface mining disturbs larger areas than underground mining.
Geothermal	Air Quality	Emissions associated with generating electricity from geothermal technologies are negligible because no fuels are combusted.
	Hydrology and Water Quality	Geothermal power plants usually re-inject the hot water that they remove from the ground back into wells. However, a small amount of water used by geothermal plants may evaporate and therefore not be returned to the ground. Also, for those geothermal plants that rely on hot, dry rocks for energy, large quantities of water are need to extract the energy which can have affects on overall water supply, surface and groundwater hydrology and associated biological resources. In addition, geothermal power plants can potentially cause groundwater contamination when drilling wells and extracting hot water or steam. However, this type of contamination can be prevented with proper management techniques.
	Solid Waste	Geothermal technologies do not produce a substantial amount of solid waste while used to create electricity.
	Land Resources	Geothermal power plants typically require the use of less land than fossil fuel power plants. However, if water is no re-injected into the ground after use to maintain pressure underground, it may cause sinking of land at the surface (or subsidence).
Hydroelectric	Air Quality	Air emissions from hydroelectric operations are negligible because no fuels are burned. However, if a large amount of vegetation is growing along the riverbed when a dam is built, it can decay in the lake that is created, causing the buildup and release of methane, a potent greenhouse gas.
	Hydrology and Water Quality	Hydropower often requires the use of dams, which can greatly affect the flow of rivers, altering ecosystems and affecting the wildlife and people who depend on those waters. Often, water at the bottom of the lake created by a dam is inhospitable to fish because it is much colder and oxygen-poor compared with water the top. When this colder, oxygen-poor water is released into the river, it can kill fish living downstream that are accustomed to warmer, oxygen-rich water. In addition, some dams withhold water and then release it all at once, causing the river downstream to suddenly flood. This action can disrupt plant and wildlife habitats and affect drinking water supplies. Hydroelectric power plants release water back into rivers after it passes through

Energy Source	Environmental Issue Area	Potential Environmental Affects
		turbines. This water is not polluted by the process of creating electricity.
	Solid Waste	The use of water to create electricity does not produce a substantial amount of solid waste.
	Land Resources	The construction of hydropower plants can alter sizable portions of land when dams are constructed and lakes are created, flooding land that may have once served as wildlife habitat, farmland, or scenic resources. Hydroelectric dams can cause erosion along the riverbed upstream and downstream, which can further disturb wildlife ecosystems and fish populations. In addition, hydroelectric power plants affect various fish populations in different ways including salmon which can be killed by turbine blades as they travel downstream toward the ocean and be trapped when swimming upstream to reproduce. For this reason, some hydroelectric dams now have special side channels or structures to help fish continue upstream.

Source: USEPA, 2009

As described above, implementation of the proposed General Plan Update could potentially result in a substantial increase in VMT within the Planning Area and surrounding region. The reader is referred to Section 4.13, Transportation, for a full discussion of potential increases in traffic. The general environmental effects associated with burning oil for the production of energy are described in **Table 4.12-2** above. The specific potential environmental effects associated with increased traffic as a result of the proposed General Plan Update are addressed in aggregate in the appropriate sections of this Draft EIR.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Land Use Element: Policy 2.2.B, Program 2.2.B.1

Open Space, Conservation, & Public Facilities: Policy 5.5C, Policy 5.5E, Policy 5.5F, Policy 5.5G, Policy 5.5H

Circulation: Policy 3.3C, Program 3.3.C.1, Program 3.6.A.1, Policy 3.6.B, Program 3.6.B.1, Policy 3.6.C, Policy 3.7.A, Policy 3.7.B, Policy 3.7.D. Policy 3.8.A, Policy 3.8.B, Program 3.8.B.1, Policy 3.8.C

Policy 2.2.B and Program 2.2.B.1 seek to develop a land use pattern that minimizes the expenditure of public funds for infrastructure. This would be achieved by identifying existing facilities and infrastructure and using this information to develop a land use pattern that maximizes this infrastructure. Implementation of Policy 2.2.B and Program 2.2.B.1 would ensure that electrical, natural gas, and television service needs are met in a timely, efficient, and logical manner by phasing the development of public facilities to encourage orderly development, as well as assist in reducing the proposed General Plan's electrical, natural gas, telephone, and cable related impacts to a level that is **less than significant.**

Policy 5.5.C explores opportunities to train appropriate City staff on new technology and look for opportunities to improve energy efficiency in public facilities, and thus reduce greenhouse gas emissions. Policy 5.5.D further attempts to reduce energy consumption by researching the adoption of sustainable design practices which encourage the use of alternative energy sources and minimize the use of fossil fuels. Policy 5.5.E ensures review of local subdivision, zoning, and building ordinances to identify whether impediments exist to the use of alternative energy sources while Policy 5.5.H explores the use of alternative energy sources such as solar- and/or wind-powered technologies.

Circulation Element Policy 3.3.C and associated Program 3.3.C.1 ensure the installation of traffic control devices at intersections, as needed, in order to reduce traffic congestion at key intersections throughout the City. Such measures will reduce the fuel consumption resulting from congested intersections, lower average speeds, and decrease idling times. Program 3.6.A.1 provides for bus pull-outs and transit stops at locations determined by the City and transit agency to be appropriate while Policy 3.6.C ensures coordination with regional transit planners to determine the feasibility of developing and/or improving commuter bus service. Policy 3.6.B and associated Program 3.6.B.1 encourage the use of car-pooling, vanpooling and flexible employment hours for employees in the City. Improved bus service and expanded car-pooling and van-pooling options will lead to less dependence on the single occupant automobile driver within the City, thus reducing greenhouse gas emissions. Policies 3.7.A, 3.7.B, and 3.7.D, as well as Policy 3.8.A, Policy 3.8b, Program 3.8.B.1, and Policy 3.8.C strive to improve pedestrian and bicycle pathways by connecting major destinations in Orland which will also encourage alternative forms of transportation and reduce dependency on automobiles. Open Space Element Policy 5.5.F encourages the use of alternative forms of transportation within the community to reduce fuel consumption.

The proposed General Plan Update could result in significant increases in energy consumption including electricity and natural gas for future development and petroleum fuels for increased vehicle miles travels. However, the proposed General Plan Update also includes the policies listed above which encourage sustainable and energy efficient building design and construction; the development of transit-oriented development; and the expansion of pedestrian, bicycle, and public transit facilities. In addition, future development within the Planning Area would be required to comply with all applicable federal, state and local regulations and standards related to energy conservation as described in the Regulatory Framework subsection above, including the California Building Energy Efficiency Standards. Therefore, this impact is considered **less than significant**.

Mitigation Measures

None required.

4.12.5.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for energy and communication services includes all of the Orland Planning Area. Potential future development of these areas would also result in cumulative demand for energy and communication services and associated facilities.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Electrical, Natural Gas, and Communication Impacts

Impact 4.12.5.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the Planning Area, contributing to the cumulative demand for energy and communication services and associated facilities. As a result, additional resources would be required. This is considered a **less than cumulatively considerable** impact.

Buildout of the proposed General Plan could increase the population of the City to 46,513 residents. As discussed under Impact 4.12.5.1, infrastructure and facility extensions would be required to serve future development. New developments generally provide the required infrastructure to connect to these systems or provide easements within which the necessary infrastructure can be installed. In general, new utility lines can be installed with little problem. However, installation of new facilities could have potentially significant environmental impacts. Future energy and communications infrastructure projects would be reviewed for compliance with CEQA on a project-by-project basis. Implementation of the proposed General Plan policy and program listed under Impact 4.12.5.1 would reduce the contribution of the proposed General Plan to cumulative impacts on energy and communication services to a level which is considered **less than cumulatively considerable**.

Mitigation Measures

None required.

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4.13 TRANSPORTATION AND CIRCULATION

This section describes the existing transportation system in the proposed Planning Area and analyzes the potential impacts associated with the land uses designated in the proposed General Plan. Aspects of the transportation system evaluated in this section include streets and roadways. Key issues addressed in this section include: increased traffic volumes on local roadways, intersections, interstate and state highways, as well as increased demand for public transportation and bicycle and pedestrian facilities. The evaluation is based on a traffic impact study prepared by KD Anderson Transportation Consultants. The study is provided in **Appendix E** of this document.

4.13.1 EXISTING SETTING

Roadways are the primary existing transportation facilities within the proposed Planning Area. The existing roadway network consists of highways, thoroughfares, arterials, collectors, and local streets. Information presented below is based on on-site field observations, traffic count data collected, and other data available from local and state agencies. Portions of the information presented are derived from the City of Orland General Plan Background Report (City of Orland, 2008).

TRANSPORTATION SYSTEM

The existing circulation system in the Orland area is presented in **Figure 4.13-1.** The system includes approximately 27 miles of paved roadway. State facilities consist of Interstate 5 (I-5) on the westerly boundary of the existing City Limits and State Route (SR) 32, which extends east from I-5 through central Orland. The balance of the circulation system is maintained by the City of Orland and generally consists of two-lane roadway facilities with stop sign controls at intersections. There are currently three signalized intersections on SR 32 at East Street, 6th Street, and 8th Street. There is a signalized intersection at South Street and 6th Street. Additionally, a four-way signalized intersection has been planned at the intersection of Papst Avenue and SR 32.

The existing roadway system in the Orland Planning Area is composed of residential local streets, collectors (major and minor), arterials, and freeways. **Figure 4.13-2** displays the functional classification of the street system within the Orland Planning Area. The designation of streets and the system of arterials, collectors and local streets is based upon:

- The travel needs of auto, truck, and transit uses;
- The network pattern of existing streets; and
- The access needs of adjacent land uses.

The primary function of local streets is to provide access to individual land uses. Collector streets channel traffic from the local streets and deliver it to the larger "through" streets. Arterial streets are the major movement streets and are intended to move larger volumes of traffic across the community and provide access to and from highways, freeways, and areas beyond the urban boundaries. However, collectors and arterials may also provide direct access to individual properties and uses.

State Routes

The following is a description of state routes in the City Planning Area.

Interstate 5 is a north-south four-lane freeway bisecting the western portion of the Planning Area. I-5 currently carries an average of approximately 25,000 vehicles per day through the City (KD

Anderson, 2009). Within the Planning Area, I-5 includes interchanges at South Street (County Road 16) and at SR 32/Newville Road.

The South Street interchange on I-5 provides a two-lane over-crossing with ramp intersections separated by approximately 900 feet. The interchange consists of a partial cloverleaf design with loop ramps provided for access to the freeway. The ramp intersections are currently controlled with stop signs.

The SR 32/Newville Road interchange on I-5 provides a two-lane over-crossing with ramp intersections separated by approximately 1,100 feet. The interchange consists of a partial cloverleaf design with loop ramps provided to supplement access to the freeway in the northwest and southeast quadrants. Off-ramps are currently controlled with stop signs.

State Route 32 through Orland generally consists of a two-lane highway with a center two-way left-turn lane. SR 32 links I-5 in Orland in the west to the Lassen National Forest east of the City of Chico. Between I-5 and SR 99, SR 32 is a major route for trucks and serves a significant amount of recreational traffic. SR 32 traverses the City of Orland business district and is designated as Walker Street from 6th Street to the eastern City Limits. SR 32 primarily serves as a commercial fronting along the Walker Street portion with on-street parking located in that area.

In 2006, a major realignment of SR 32 was undertaken within the City of Orland. This realignment utilized a pair of curves to bring the highway into perpendicular intersection with 6th Street. Additionally, existing traffic signals were upgraded and new signals were installed. An important purpose for the realignment was to correct a condition involving large trucks, which were having difficulty making the offset turns without encroaching into opposing traffic lanes. Before the realignment, turning trucks frequently would mount curbs at the corners and swing out into the lanes on oncoming traffic.

Arterials

Arterial streets are intended to handle the movement of goods and people through the area and serve inter-county and inter-regional transportation needs. The City of Orland currently has four designated arterial streets, two of which are I-5 and SR 32. Because of this, Caltrans currently maintains all but South Street and 6th Street of the City's arterial system. The following streets comprise the City's arterial system:

- I-5
- SR 32
- 6th Street
- South Street (I-5 to 6th Street)

6th Street is the only north-south oriented non-freeway arterial in Orland. 6th Street is also referred to as County Road 99 or Highway 99W. Land uses along 6th Street are primarily commercial and industrial, but also include some residential uses to the north, from Almond Way to the northern City Limits.

South Street, the City's other local arterial street, is aligned in an east-west direction and connects 6th Street to I-5. South Street provides access from I-5 to commercial and residential areas in Orland and to agricultural areas in Glenn County.

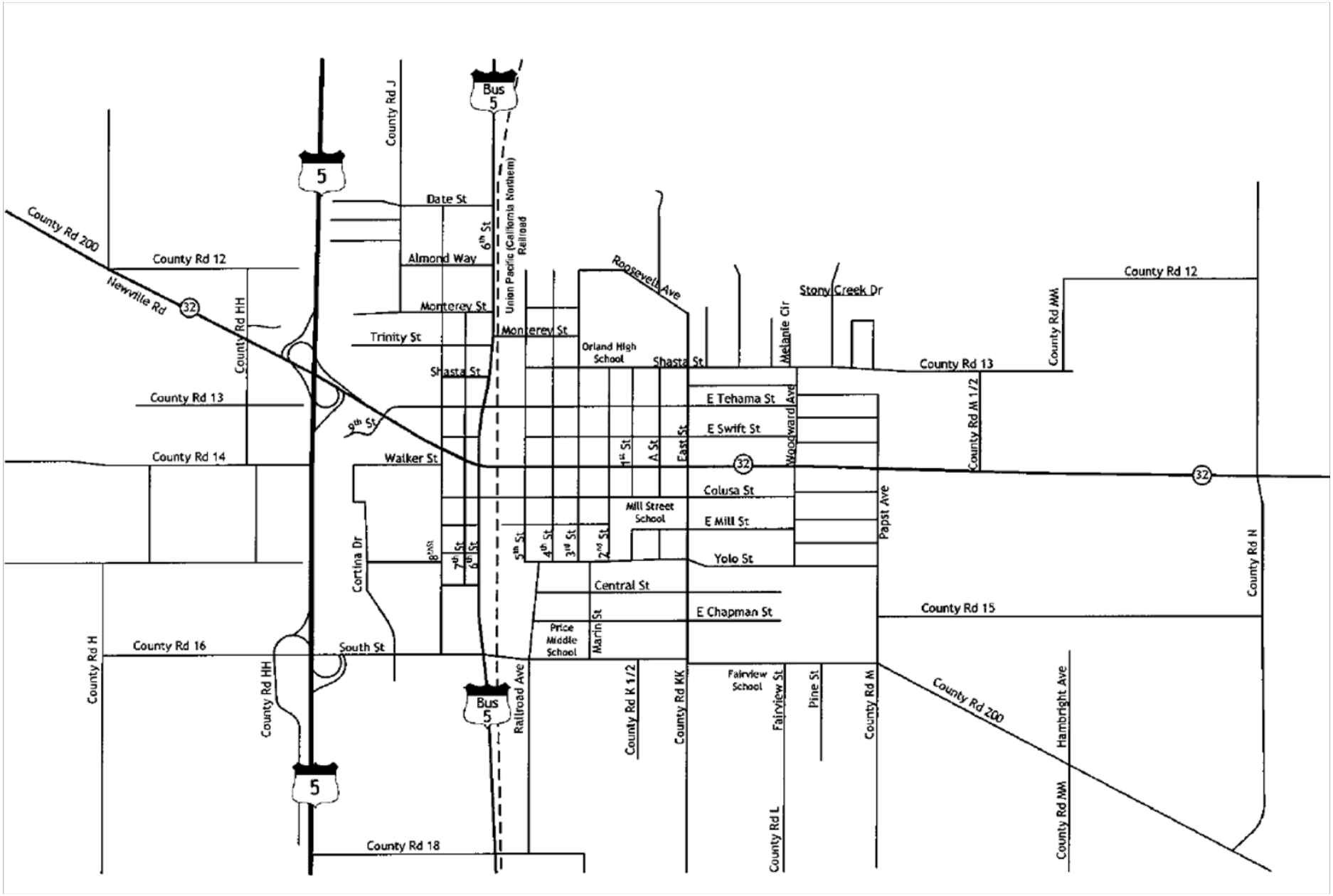
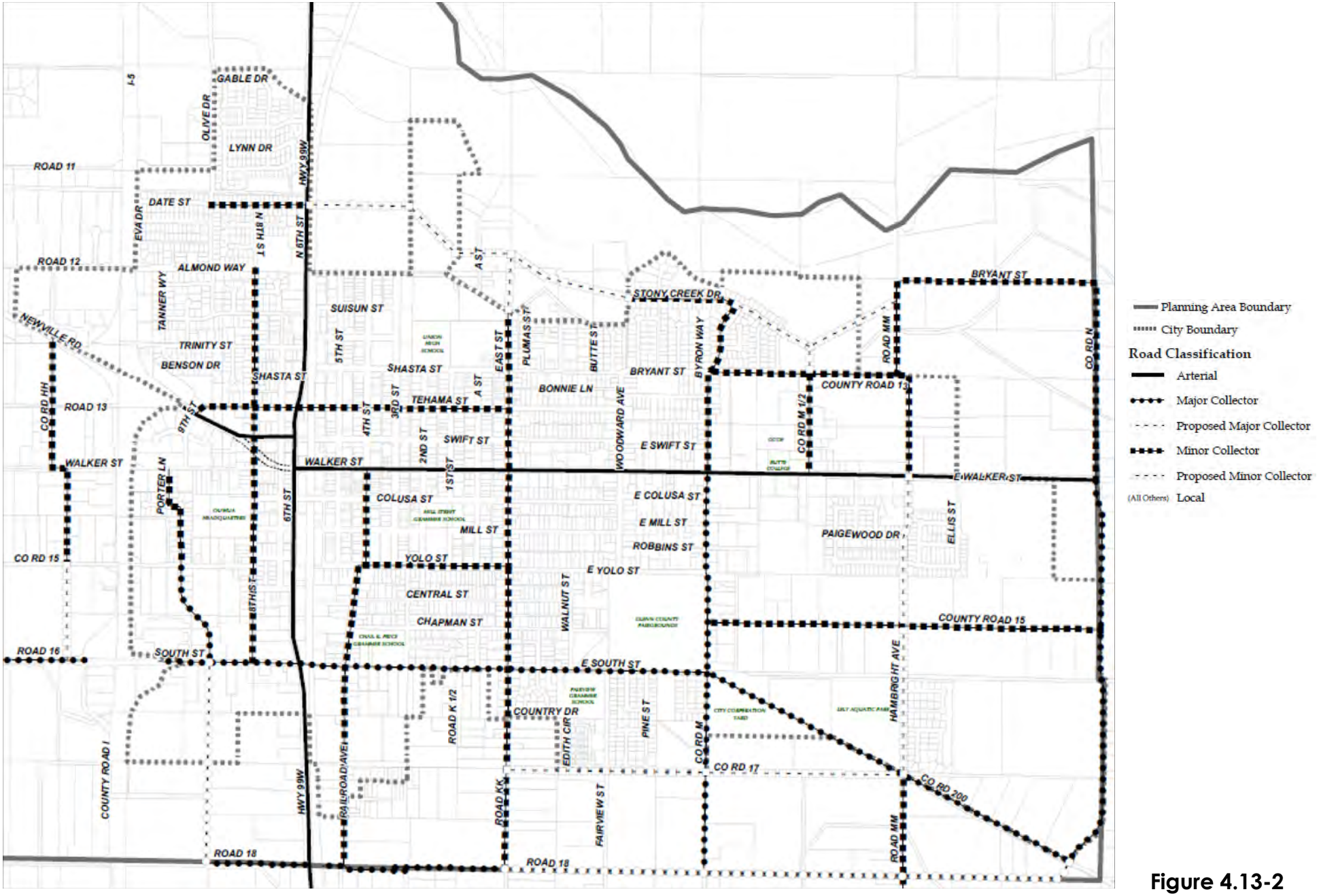


Figure 4.13-1

Existing Circulation System

Source: KD Anderson, 2009

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Source: KD Anderson, 2009

Figure 4.13-2

Functional Classification of City Street System

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Major Collectors

Major collector streets provide circulation between arterial streets and major activity centers. Within residential areas, traffic is directed onto major collector streets and then to connecting arterials. Small scale retail or commercial establishments may have direct access to major collectors, but direct access to individual residential lots is discouraged to improve traffic safety and efficiency. The following streets comprise the City's major collectors:

- South Street (6th Street to Papst Avenue)
- County Road 200 (Papst Avenue to County Road N)
- County Road 18 (Cortina Drive to County Road 200)
- Cortina Drive (Newport Street to County Road 18)
- Papst Avenue/County Road M (SR 32 to County Road 18)
- County Road N (SR 32 to County Road 200)
- County Road 16 (West of I-5)

Minor Collectors

The primary non-local road type in the City is minor collectors, which feed traffic from residential areas to major collectors or arterials. The following streets comprise the City's minor collector system (an asterisk " * " indicates proposed roadways):

- Date Street and extension (Rennat Way to 6th Street, *6th Street to County Road N)
- Bryant Street (Papst Avenue to County Road MM)
- Tehama Street (SR 32 to East Street)
- *County Road 17 (East Street to County Road MM)
- County Road HH (County Road 16 to County Road 200)
- Hillsan Street (Papst Avenue to County Road N)
- Railroad Avenue (Yolo Street to County Road 18)
- Yolo Street (Railroad Avenue to East Street)
- 4th Street (Yolo Street to SR 32)
- Cortina Drive/Porter Lane (Newport Avenue to Walker Street)
- East Street (County Road 18 to Roosevelt Avenue; *Roosevelt Avenue to Date Street)
- Papst Avenue (SR 32 to Date Street)
- County Road M1/2 (Bryant Street to Date Street)
- County Road MM (County Road 18 to County Road 200; *County Road 200 to Date Street)
- County Road N (SR 32 to Date Street)
- 8th Street (South Street to Date Street)

Local Streets and Alleys

Local streets provide direct access to individual adjoining properties. Local streets are accessed by at least two other streets. Alleys provide direct access to individual adjoining properties.

Truck Routes

Trucks are routed through the City for safety and to minimize their impact on residential areas. Local deliveries are allowed on all streets. However, through truck traffic is restricted to streets on the designated truck routes. The following streets comprise the designated truck routes in the City:

- SR 32
- 6th Street (County Road 99)
- South Street (I-5 to the eastern boundary of Railroad Avenue)
- Railroad Avenue (South Street to County Road 18)
- Papst Avenue (SR 32 to South Street)
- County Road 200 (Pabst Avenue to County Road N)

These truck routes are shown in **Figure 4.13-3.**

Rail Service

The City of Orland is served by railroad lines owned by the California Northern Railroad Company, which provide freight hauling service. The line runs north-south between 6th Street and 5th Street with generally two trips per day. Passenger service is provided by Amtrak along the Sacramento-Dunsmuir line. The nearest passenger stop is in Chico.

Rail-served industrial activities, within and adjacent to the rail line, contribute to the City's economic base. Freight-rail service plays a key role in the transportation of heavy or bulky materials produced locally and shipped to regional markets. Rail spurs serving these activities represent an important asset to the City of Orland and Glenn County.

Glenn Ride Bus Service

Public transportation bus service is provided to the City of Orland through Glenn Ride, which is a transit service provided by Glenn County. It is a fixed-route bus system with seven round trips every weekday and three round trips on Saturday from Willows to Chico. There are currently 14 bus stops in Orland.

School Bus Service

School buses are operated by the Orland School District. The district currently operates approximately 15 buses.

Taxi Service

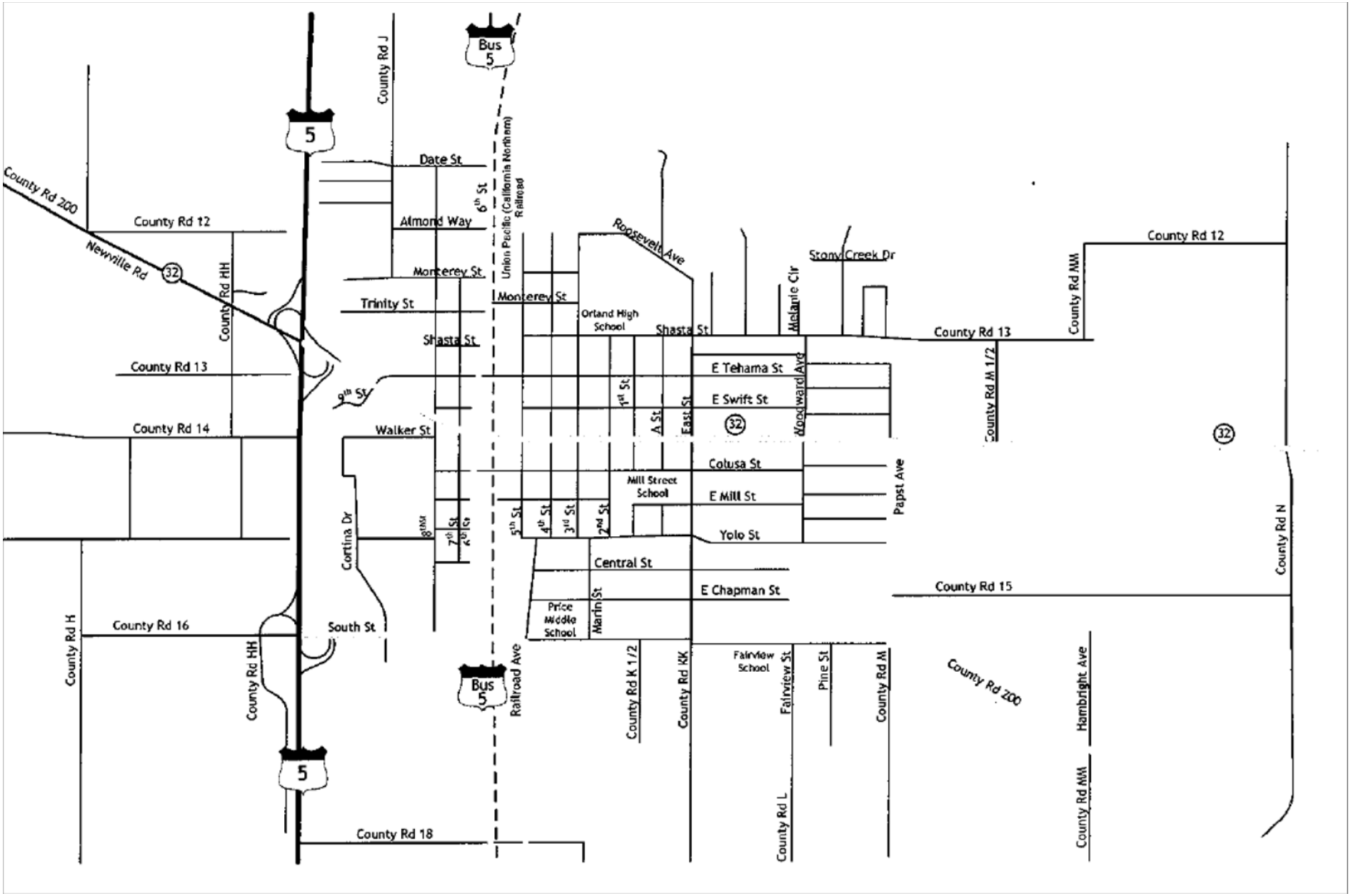
There are currently two taxi services operating within the City of Orland – one private and one subsidized by Glenn County.

Pedestrian Facilities

City standards require sidewalks along all improved streets except in the industrial areas. The City is planning for a pedestrian facility to include a multi-use path along Stony Creek. Additionally, the City has planned to provide multi-use trails within the right-of-ways of undergrounded canals, which could be utilized as pedestrian pathways.

Bicycle Facilities

Presently there are no formally designated bicycle lanes or bicycle facilities in the City. However, the City understands the need to move people through the community. As mentioned above, the City is planning for multi-use pathways along Stony Creek, as well as multi-use pathways within the right-of-ways of undergrounded canals. Additionally, street widths can accommodate bicycle traffic in some areas and bicycle racks are available at schools and parks.



Source: KD Anderson, 2009

Dashed lines indicate Truck Routes

Figure 4.13-3

Existing Truck Routes

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Airport Facilities

There are two publicly-owned airports in Glenn County: Haigh Field, located in Orland, and the Willow-Glenn Airport. Haigh Field, located southeast of the City, off County Road 28, has a 4,500 foot paved and "pilot controlled" lighted runway that is 60 feet wide. Its length qualifies it as a "Basic Transport" facility, suitable for use by general aviation users and capable of handling small or light business jets. There is sufficient land area for expanding service and facilities to meet the City's needs and also those of the region.

Regional commercial carrier service is available at the City of Chico Municipal Airport where international and national connections can be made through San Francisco International Airport. The nearest major regional and international service is provided by Sacramento International Airport.

STUDY AREA INTERSECTIONS

The traffic-related effects of the Orland General Plan were assessed for this DEIR by analyzing traffic operations at intersections that would serve General Plan-related travel. The following intersections were selected for analysis in consultation with the City Engineer (KD Anderson and Associates, 2009):

1) Newville Road and County Road HH
2) Newville Road and I-5 Southbound Ramps
3) Newville Road (SR 32) and I-5 Northbound Ramps
4) 6th Street and Swift Street
5) Walker Street (SR 32) and 6th Street
6) Walker Street (SR 32) and East Street
7) Walker Street (SR 32) and Pabst Avenue
8) SR 32 and County Road MM (Future)
9) SR 32 and County Road N
10) South Street and I-5 Southbound Ramps
11) South Street and I-5 Northbound Ramps
12) South Street and Cortina Drive
13) South Street and 6th Street
14) South Street and Papst Avenue

The locations of the study intersections are presented in **Figure 4.13-4**. The numbers listed above correspond to the intersection numbers shown in this figure.

STUDY AREA ROADWAY SEGMENTS

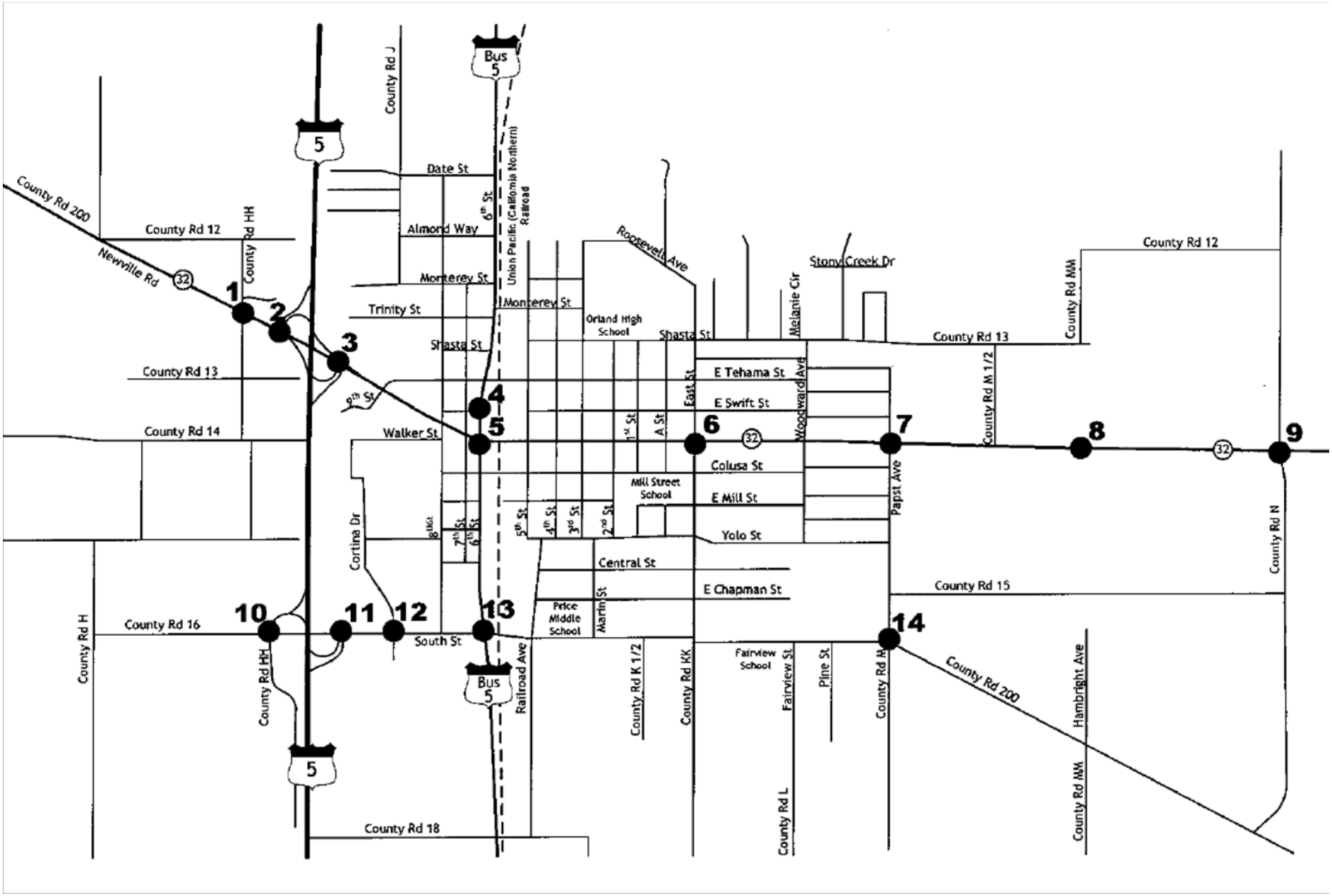
In addition to analyzing intersections, the traffic-related effects of the Orland General Plan on roadway segments were assessed for the DEIR. The following roadway segments were selected for analysis in consultation with the City Engineer (KD Anderson and Associates, 2009):

1) Almond Way, between 6th Street and 8th Street
2) Monterey Street, between 5th Street and 6th Street
3) 6th Street, between Trinity Street and Shasta Street
4) Tehama Street, between 5th Street and 6th Street
5) Shasta Street, between Mellane Circle and Woodward Avenue
6) Newville Road; west of County Road HH
7) County Road HH, south of Newville Road

8) Tehama Street, northeast of SR 32
9) 5th Street, north of Walker Street (SR 32)
10) 5th Street, south of Walker Street (SR 32)
11) 4th Street, north of Walker Street (SR 32)
12) 4th Street, south of Walker Street (SR 32)
13) 3rd Street, north of Walker Street (SR 32)
14) 3rd Street, south of Walker Street (SR 32)
15) 2nd Street, north of Walker Street (SR 32)
16) 2nd Street, south of Walker Street (SR 32)
17) A Street, north of Walker Street (SR 32)
18) A Street, south of Walker Street (SR 32)
19) East Street, north of Walker Street (SR 32)
20) East Street, south of Walker Street (SR 32)
21) Woodward Avenue, north of Walker Street (SR 32)
22) County Road M1/2, north of Walker Street (SR 32)
23) 4th Street, between Mill Street and Yolo Street
24) Yolo Street, west of Papst Avenue
25) County Road 16, west of County Road HH
26) Cortina Drive, north of South Street
27) 8th Street, north of South Street
28) 6th Street, north of South Street
29) 6th Street, south of South Street
30) Railroad Avenue, north of South Street
31) East Street, north of South Street
32) South Street, west of Papst Avenue
33) Papst Avenue, south of South Street
34) South Street (County Road 200), west of County Road N
35) County Road N, north of South Street (County Road 200)
36) SR 32, east of I-5
37) SR 32, (Walker Street), east of 6th Street
38) SR 32 (Walker Street), east of Papst Avenue
39) SR 32 (Walker Street), east of County Road N

The locations of study roadway segments are presented in **Figure 4.13-5**. The numbers listed above correspond to the roadway segment numbers shown in this figure.

The study roadway segments are specific to certain locations on the roadway network. However, in some cases, a roadway segment represents larger portions of roadway segments. For example, analysis results from roadway segment #5, Shasta Street, between Melanie Circle and Woodward Avenue, apply to Shasta Street from East Street to Woodward Avenue. The descriptions of locations listed above and used in this DEIR are as specific as possible to minimize ambiguity.



Source: KD Anderson, 2009

Figure 4.13-4
Study Intersections

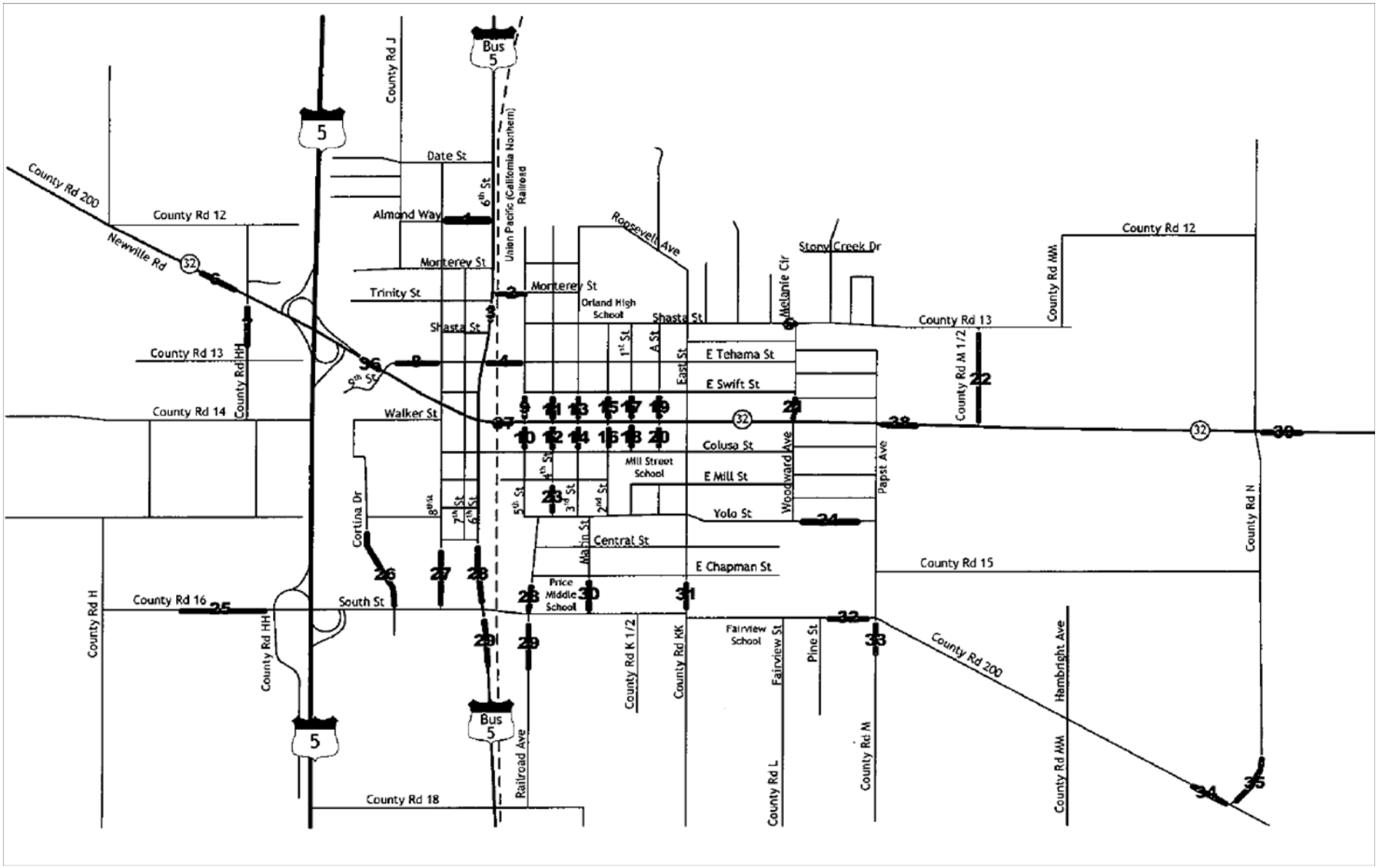


Figure 4.13-5
Study Roadway Segments

Source: KD Anderson, 2009

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EXISTING TRAFFIC VOLUMES AND OPERATING CONDITIONS

The following is a description of existing traffic operation conditions at the study intersections and study roadway segments.

Intersection Level of Service Analysis Procedures

Level of service (LOS) analysis provides a basis for describing existing traffic conditions and for evaluating the significance of project-related traffic impacts. Level of service measures the quality of traffic flow and is represented by letter designation from A to F, with a grade of A referring to the best conditions, and F representing the worst conditions. The characteristics associated with the various LOS intersections are presented in **Table 4.13-1**.

TABLE 4.13-1
LEVEL OF SERVICE DEFINITIONS – INTERSECTIONS

Level of Service	Signalized Intersection	Unsignalized Intersection
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay $\leq$ 10.0 sec/vehicle	Little or no delay. Delay $\leq$ 10 second/vehicle
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec/vehicle and $\leq$ 20 seconds/vehicle	Short traffic delays. Delay > 10 seconds/vehicle and $\leq$ 15 seconds/vehicle
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 seconds/vehicle and $\leq$ 35.0 seconds/vehicle	Average traffic delays. Delay > 15 seconds/vehicle and $\leq$ 25 seconds/vehicle
"D"	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 seconds/vehicle and $\leq$ 55.0 seconds/vehicle	Long traffic delays. Delay > 25 seconds/vehicle and $\leq$ 35 seconds/vehicle
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 seconds/vehicle and < 80.0 seconds/vehicle	Very long traffic delays, failure, extreme congestion. Delay > 35 seconds/vehicle and $\leq$ 50 seconds/vehicle
"F"	Total breakdown, stop-and-go operation. Delay > 80.0 seconds/vehicle	Intersection blocked by external causes. Delay > 50 seconds/vehicle

Source: KD Anderson and Associates, 2009.

Signalized Intersections

The LOS methodology used to analyze signalized intersections is presented in the Transportation Research Board's (TRB) Highway Capacity Manual 2000 (Transportation Research Board, 2000). At signalized intersections, the overall LOS for intersections is based on the average length of delays for all motorists at the intersections. The characteristics associated with the various LOS are presented in **Table 4.13-1**.

In the analysis of signalized intersections, the control of right-turn movements that are served with exclusive turn lanes are assumed to include overlapping right-turn control. With this type of control, right turns are allowed during the time the crossing approaches have a left-turn phase.

Unsignalized Intersections

The LOS methodology used to analyze unsignalized intersections (i.e., intersections controlled by stop signs) is presented in the *Highway Capacity Manual 2000*. **Table 4.13-1** presents the ranges of vehicle delay associated with each LOS for unsignalized intersections.

For unsignalized all-way stop-sign controlled intersections, the *Highway Capacity Manual 2000* method analyzes each intersection approach independently. This method assumes all drivers are required to stop before proceeding into the intersection. In addition, for each approach, vehicles on the other approaches create conflicts.

Queuing

The lengths of vehicle queues were also analyzed for this DEIR. Methods presented in the *Highway Capacity Manual 2000* were used to analyze queuing. "Design queues" were estimated for each intersection approach. The calculation of vehicle queues are shown in the LOS calculation worksheets presented in **Appendix E**. The results are summarized at the end of each set of LOS calculation worksheets.

Signal Warrants Procedures

Traffic signal warrants are a series of standards which provide guidelines for determining if a traffic signal is appropriate. Signal warrant analyses are typically conducted at intersections of uncontrolled major streets and stop sign-controlled minor streets. If one or more signal warrants are met, signalization of the intersection may be appropriate. However, a signal should not be installed if none of the warrants are met, since the installation of signals would increase delays on the previously-uncontrolled major street resulting in an undesirable increase in overall vehicle delay at the intersection. Signalization may also increase the occurrence of particular types of accidents. Therefore, if signals are installed where signal warrants are not met the detriment of increased accidents and overall delay may be greater than the benefit in traffic operating conditions on the single worst movement at the intersection. Signals warrants, then, provide an industry-standard basis for identifying when the adverse effect on the worst movement is substantial enough to warrant signalization.

For the traffic analysis conducted for this DEIR, available data are limited to a.m. and p.m. peak hour volumes. Thus, unsignalized intersections were evaluated using the Peak Hour Warrant (Warrant Number 3) from the California Department of Transportation document Manual on Uniform Traffic Devices for Streets and Highways (*FHWA's MUTCD 2003 Edition, as amended for use in California*) (MUTCD) (KD Anderson and Associates, 2009). This warrant was applied where the minor street experiences long delays in entering or crossing the major street for at least one

hour of the day. The Peak Hour Warrant itself includes several components. Some of the components involve comparison of traffic volumes to a nomograph.

Even if the Peak Hour Warrant is met, a more detailed signal warrant study is recommended before a signal is installed. The more detailed study should consider volumes during the eight highest hours of the day, volumes during the four highest hours of the day, pedestrian traffic, and accident histories.

Signal warrant analysis worksheets for all stop sign-controlled intersections are presented in the **Appendix E**.

Existing Intersection Traffic Volumes

Peak hour turning movement traffic volume count data at the study intersections were collected for the purposes of this DEIR. Traffic county data collection reports are presented in **Appendix E**.

The peak period intersection turning movement count data were collected on Tuesday October 30, 2007 and Wednesday October 31, 2007 during the 7:00 a.m. to 9:00 a.m. period, and the 4:00 p.m. to 6:00 p.m. period. Volumes during the highest one-hour period were used for this DEIR.

Figure 4.13-6 presents the existing lane configurations and existing a.m. peak hour and p.m. peak hour traffic volumes at the existing study intersections.

Intersection Levels of Service

Table 4.13-2 presents a summary of existing a.m. peak hour and p.m. peak hour LOS at the 13 existing study locations. The worksheets presenting the calculation of LOS are presented in **Appendix E**.

Nine of the 13 existing study intersections operate at acceptable LOS A or B during both the a.m. peak hour and the p.m. peak hour. The intersection of Newville Road and County Road HH operates at LOS B during the a.m. peak hour and LOS C during the p.m. peak hour. The following three intersections operate at LOS C during both the a.m. peak hour and p.m. peak hour:

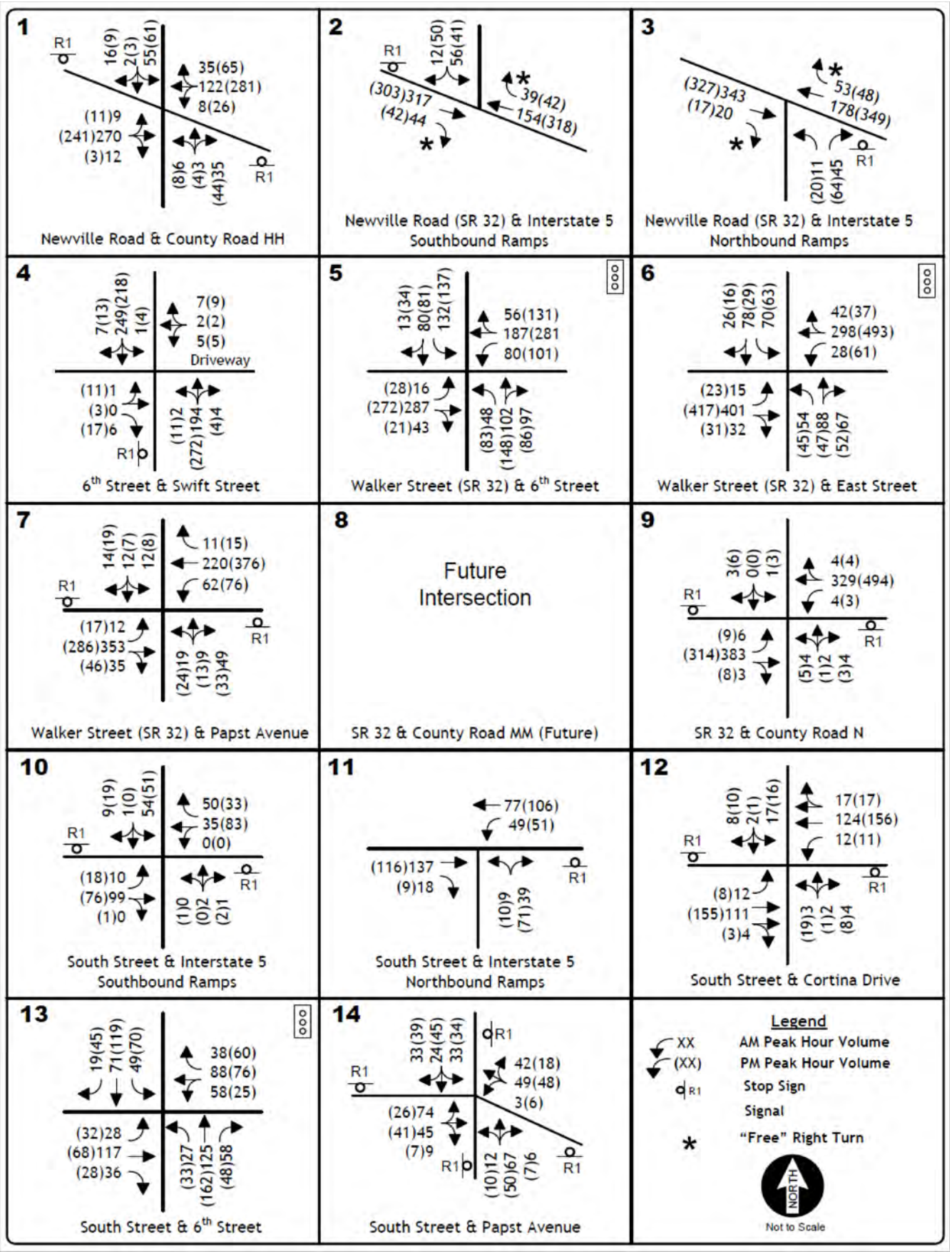
- Walker Street (SR 32) and 6th Street
- Walker Street (SR 32) and Papst Avenue
- South Street and 6th Street

All 13 of the existing study intersections operate at acceptable LOS C or better during both the a.m. peak hour and the p.m. peak hour under existing conditions. No improvements are needed at the study intersections to achieve acceptable LOS.

TABLE 4.13-2
INTERSECTION LEVEL OF SERVICE – EXISTING CONDITIONS

Intersection	Intersection Control	Acceptable LOS	Existing Conditions				
			Signal Warrant Met?	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1. Newville Road& County Road HH	TWSC	D	No	13.8	B	19.3	C
2. Newville Road & I-5 Southbound Ramps	OWSC	D	No	8.3	A	8.2	A
3. Newville Road (SR 32) & I-5 Northbound Ramps	OWSC	D	No	11.6	B	12.7	B
4. 6th Street & Swift Street	TWSC	D	No	11.2	B	11.9	B
5. Walker Street (SR 32) & 6th Street	Signal	D	--	29.7	C	31.2	C
6. Walker Street (SR 32) & East Street	Signal	E	--	18.0	B	15.6	B
7. Walker Street (SR 32) & Papst Avenue	TWSC (Signal*)	E	No	17.1	C	20.5	C
8. SR 32 & County Road MM (Future)	Signal*	E	--	--	--	--	--
9. SR 32 & County Road N	TWSC	D	No	9.0	A	9.8	A
10. South Street & I-5 Southbound Ramps	TWSC	D	No	7.4	A	7.5	A
11. South Street & I-5 Northbound Ramps	OWSC	D	No	8.4	A	8.7	A
12. South Street & Cortina Drive	TWSC	D	No	10.3	B	10.6	B
13. South Street & 6th Street	Signal	D	--	21.1	C	21.5	C
14. South Street & Papst Avenue	AWSC	D	No	8.2	A	7.8	A

Notes: "LOS" = Level of Service. "Signal" = Signalized. "Signal" = Signalized in the future. "TWSC" = Two-way stop-sign controlled. "OWSC" = One-way stop-sign controlled. "AWSC" = All-way stop-sign controlled. Delay is expressed in second per vehicle. Worst movement delay is shown for unsignalized intersections.*
Source: KD Anderson and Associates, 2009.



Source: KD Anderson, 2010

Figure 4.13-6

Existing Conditions Interesection Traffic Volumes and Lane Configurations

PMC

ROADWAY SEGMENT LEVEL OF SERVICE ANALYSIS PROCEDURES

Roadway segment LOS was analyzed for the purposes of this DEIR based on daily traffic volumes along roadways.

The roadway segment LOS method sets maximum daily traffic volume thresholds for each LOS designation. This roadway segment LOS analysis method sets separate thresholds for different types of facilities (i.e., arterials, major collectors, minor collectors, and local roadways), and different numbers of lanes. The thresholds used by the City of Orland are depicted in **Table 4.13-3**.

Traffic volumes vary substantially during a 24-hour period. For example, traffic volumes during the p.m. peak hour are substantially higher than at midnight. Traffic congestion levels also vary substantially between different locations within roadway segments. For example, traffic congestion at intersections is almost always worse than at mid-block locations. As a result, analysis of daily LOS on roadway segments is an inherently generalized analysis approach. The daily roadway segment LOS analysis approximates LOS at the most congested locations during the peak period of the day.

While the traffic volume thresholds shown in **Table 4.13-3** are generalized, they can be helpful for planning purposes to suggest the daily volume of traffic that might yield various peak hour LOS. It should be noted that the capacity of urban roadway segments is generally governed by the operation of adjacent intersections, and turn lanes and turn movements at these intersections can have a significant effect on LOS.

TABLE 4.13-3
ROADWAY SEGMENT LEVEL OF SERVICE DAILY TRAFFIC VOLUME RANGES

Facility Type	Number of Lanes	Range of Daily Traffic Volumes for Each Level of Service					
		LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
Local	2	0 to 2,700	2,701 to 3,150	3,151 to 3,600	3,601 to 4,050	4,051 to 4,500	More than 4,500
Minor Collector	2	0 to 4,800	4,801 to 5,600	5,601 to 6,400	6,401 to 7,200	7,201 to 8,000	More than 8,000
Major Collector	2	0 to 7,620	7,621 to 8,890	8,891 to 10,160	10,161 to 11,430	11,431 to 12,700	More than 12,700
Arterial	2	0 to 9,000	9,001 to 10,500	10,501 to 12,000	12,001 to 13,500	13,501 to 15,000	More than 15,000
Arterial	4	0 to 18,000	18,001 to 21,000	21,001 to 24,000	24,001 to 27,000	27,001 to 30,000	More than 30,000

Source: KD Anderson and Associates, 2009

Existing Roadway Segment Traffic Volumes

Daily traffic volume count data at study roadway segments were collected for 24-hour periods for the purposes of this DEIR on Thursday December 4, 2007; Wednesday December 5, 2007; and Thursday December 6, 2007. Traffic count data collection reports are presented in **Appendix E**. In addition, the Caltrans internet website (http://dot.ca.gov/) was used as a source for existing traffic volumes for I-5 and SR 32.

Table 4.13-4 presents the existing daily traffic volumes for study roadway segments.

Roadway Segment Levels of Service

Table 4.13-4 presents a summary of existing LOS on the 39 existing study roadway segments. All of the roadway segments, except one, operate at LOS A. SR 32 (Walker Street) east of 6th Street operates at LOS C.

All of the roadway segments operate at acceptable LOS C or better. No improvements are needed on these roadway segments to achieve acceptable LOS.

TABLE 4.13-4
DAILY ROADWAY SEGMENT VOLUMES AND LEVELS OF SERVICE – EXISTING CONDITIONS

Roadway & Count Location	Functional Classification	Lanes	Capacity	Acceptable LOS	Existing Conditions	
					Volume	LOS
1. Almond Way, between 6th Street & 8th Street	Local	2	4,500	C	1,025	A
2. Monterey Street, between 5th Street and 6th Street	Local	2	4,500	C	1,425	A
3. 6th Street, between Trinity Street & Shasta Street	Arterial	2	15,000	C	6,369	A
4. Tehama Street, between 5th Street and 6th Street	Minor Collector	2	8,000	C	1,562	A
5. Shasta Street, between Melanie Circle and Woodward Avenue	Local	2	4,500	C	658	A
6. Newville Road; west of County Road HH	Major Collector	2	12,700	C	5,018	A
7. County Road HH, south of Newville Road	Minor Collector	2	8,000	C	945	A
8. Tehama Street, northeast of SR 32	Minor Collector	2	8,000	C	1,602	A
9. 5th Street, north of Walker Street (SR 32)	Local	2	4,500	C	756	A
10. 5th Street, south of Walker Street (SR 32)	Local	2	4,500	C	1,427	A
11. 4th Street, north of Walker Street (SR 32)	Local	2	4,500	C	1,210	A
12. 4th Street, south of Walker Street (SR 32)	Minor Collector	2	8,000	C	2,141	A
13. 3rd Street, north of Walker Street (SR 32)	Local	2	4,500	C	1,079	A
14. 3rd Street, south of Walker Street (SR 32)	Local	2	4,500	C	1,240	A
15.2nd Street, north of Walker Street (SR 32)	Local	2	4,500	C	474	A

Roadway & Count Location	Functional Classification	Lanes	Capacity	Acceptable LOS	Existing Conditions	
					Volume	LOS
16. 2nd Street, south of Walker Street (SR 32)	Local	2	4,500	C	725	A
17. A Street, north of Walker Street (SR 32)	Local	2	4,500	C	209	A
18. A Street, south of Walker Street (SR 32)	Local	2	4,500	C	406	A
19. East Street, north of Walker Street (SR 32)	Minor Collector	2	8,000	C	2,482	A
20. East Street, south of Walker Street (SR 32)	Minor Collector	2	8,000	C	3,072	A
21. Woodward Avenue, north of Walker Street (SR 32)	Local	2	4,500	C	1,951	A
22. County Road M1/2, north of Walker Street (SR 32)	Minor Collector	2	8,000	C	963	A
23. 4th Street, between Mill Street and Yolo Street	Minor Collector	2	8,000	C	1,350	A
24. Yolo Street, west of Papst Avenue	Local	2	4,500	C	1,045	A
25. County Road 16, west of County Road HH	Major Collector	2	12,700	C	1,160	A
26. Cortina Drive, north of South Street	Major Collector	2	12,700	C	723	A
27. 8th Street, north of South Street	Minor Collector	2	8,000	C	1,039	A
28. 6th Street, north of South Street	Arterial	2	15,000	C	5,372	A
29. 6th Street, south of South Street	Arterial	2	15,000	C	4,612	A
30. Railroad Avenue, north of South Street	Minor Collector	2	8,000	C	1,983	A
31. East Street, north of South Street	Minor Collector	2	8,000	C	2,311	A
32. South Street, west of Papst Avenue	Major Collector	2	12,700	C	2,010	A
33. Papst Avenue, south of South Street	Major Collector	2	12,700	C	1,284	A
34. South Street (County Road 200), west of County Road N	Major Collector	2	12,700	C	981	A
35.County Road N, north of South Street (County Road 200)	Major Collector	2	12,700	C	206	A
36. SR 32, east of I-5	Arterial	4	30,000	D	5,600	A

Roadway & Count Location	Functional Classification	Lanes	Capacity	Acceptable LOS	Existing Conditions	
					Volume	LOS
37. SR 32, (Walker Street), east of 6th Street	Arterial	2	15,000	E	10,800	C
38. SR 32 (Walker Street), east of Papst Avenue	Arterial	2	15,000	E	7,600	A
39. SR 32 (Walker Street), east of County Road N	Arterial	2	15,000	D	7,600	A

Source: KD Anderson and Associates, 2009.

4.13.2 REGULATORY FRAMEWORK

FEDERAL

Federal Aviation Administration

The Federal Aviation Administration (FAA) is an agency of the U.S. Department of Transportation that regulates civil aviation in the United States. The FAA is primarily responsible for the advancement, safety, and regulation of civil aviation. The role of the FAA includes controlling all of the nation's airspace, administering the aviation safety program, and developing standards for the construction of airports and heliports.

Federal Aviation Regulation (FAR) Part 77 establishes standards and notification requirements for objects affecting navigable airspace. This notification serves as the basis for:

- Evaluating the effect of the construction or alteration on operating procedures.
- Determining the potential hazardous effect of the proposed construction on air navigation.
- Identifying mitigation measures to enhance safe air navigation.
- Charting of new objects.

FAR Part 77 notification allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing the adverse impacts to the safe and efficient use of navigable airspace. The regulations identify three-dimensional imaginary surfaces on and around airports through which no object should penetrate. All development projects under the proposed General Plan would be subject to review associated with Part 77, if obstruction into the navigable airspace is anticipated.

STATE

California Department of Transportation (Caltrans)

The California Department of Transportation (Caltrans) is the primary state agency responsible for transportation issues. One of its duties is the construction and maintenance of the state highway system. Caltrans has established standards for roadway traffic flow and has developed procedures to determine if intersections require improvements. For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before any

construction work may be undertaken. For projects that would not physically affect facilities, but may influence traffic flow and levels of services at such facilities, Caltrans may recommend measures to mitigate the traffic impacts of such projects.

California Transportation Commission

The California Transportation Commission consists of nine members appointed by the Governor. The Commission is responsible for the programming and allocating of funds for the construction of highway, passenger rail, and transit improvements throughout the state. The Commission is responsible for adopting the State Transportation Improvement Program (STIP) and the State Highway Operation and Protection Program (SHOPP).

4.13.3 IMPACTS AND MITIGATION MEASURES

Standards of Significance

The significance of the proposed General Plan's impact on traffic operating conditions is based on a determination of whether resulting LOS is considered acceptable. The proposed General Plan's impact on traffic conditions is considered significant if implementation of the General Plan would result in LOS changing from levels considered acceptable to levels considered unacceptable, or if implementation of the General Plan would substantially worsen already unacceptable LOS.

In the proposed General Plan Planning Area, two agencies are responsible for roadways: the City of Orland and Caltrans. As described below, these two agencies identify different LOS as being acceptable.

Significant Impact Threshold Criteria – City of Orland and Caltrans Facilities

City of Orland Standards of Significance

Policy 3.3.A of the proposed General Plan states:

> "Policy 3.3.A: Construct street and highway improvements to maintain an overall daily roadway Level of Service of "C" with an a.m. and p.m. peak-hour roadway and intersection Level of Service of "D" or better, unless other public health, safety, or welfare factors determine otherwise."

Therefore, LOS C or better will be considered acceptable for daily LOS on roadways for which the City of Orland is responsible (i.e., roadways which are not state routes). LOS D or worse will be considered unacceptable. This definition of acceptable LOS will be applied to the following roadway segments:

1) Almond Way, between 6th Street and 8th Street
2) Monterey Street, between 5th Street and 6th Street
3) 6th Street, between Trinity Street and Shasta Street
4) Tehama Street, between 5th Street and 6th Street
5) Shasta Street, between Melanie Circle and Woodward Avenue
6) Newville Road; west of County Road HH
7) County Road HH, south of Newville Road
8) Tehama Street, northeast of SR 32
9) 5th Street, north of Walker Street (SR 32)

10) 5th Street, south of Walker Street (SR 32)
11) 4th Street, north of Walker Street (SR 32)
12) 4th Street, south of Walker Street (SR 32)
13) 3rd Street, north of Walker Street (SR 32)
14) 3rd Street, south of Walker Street (SR 32)
15) 2nd Street, north of Walker Street (SR 32)
16) 2nd Street, south of Walker Street (SR 32)
17) A Street, north of Walker Street (SR 32)
18) A Street, south of Walker Street (SR 32)
19) East Street, north of Walker Street (SR 32)
20) East Street, south of Walker Street (SR 32)
21) Woodward Avenue, north of Walker Street (SR 32)
22) County Road M1/2, north of Walker Street (SR 32)
23) 4th Street, between Mill Street and Yolo Street
24) Yolo Street, west of Papst Avenue
25) County Road 16, west of County Road HH
26) Cortina Drive, north of South Street
27) 8th Street, north of South Street
28) 6th Street, north of South Street
29) 6th Street, south of South Street
30) Railroad Avenue, north of South Street
31) East Street, north of South Street
32) South Street, west of Papst Avenue
33) Papst Avenue, south of South Street
34) South Street (County Road 200), west of County Road N
35) County Road N, north of South Street (County Road 200)

The numbering of the roadway segments listed above is consistent with the numbering shown on **Figure 4.13-5**.

LOS D or better will be considered acceptable for a.m. peak hour and p.m. peak hour LOS on intersections for which the City of Orland is responsible (i.e., intersections which are not on state routes). LOS E or worse will be considered unacceptable. This definition of acceptable LOS will be applied to the following intersections:

1) Newville Road and County Road HH
2) 6th Street and Swift Street
3) South Street and Cortina Drive
4) South Street and 6th Street
5) South Street and Papst Avenue

The numbering of the intersections listed above is consistent with the numbering shown in **Figure 4.13-4**.

Caltrans Standards of Significance

SR 32 and I-5 are facilities under the jurisdiction of Caltrans. Acceptable LOS for these two facilities are defined in the *Transportation Concept Report State Route 32* (California Department of Transportation, 2007), and the *Interstate 5 Transportation Concept Report* (California Department of Transportation, 1997).

The Transportation Concept Report (TCR) for SR 32 defines "20-Year Concept LOS" as "The minimum allowable LOS over the next 20 years." The TCR for SR 32 specified the 20-Year Concept LOS for SR 32 as:

- LOS D between I-5 and 6th Street,
- LOS E between 6th Street and County Road N, and
- LOS D between County Road N and SR 45 (approximately seven miles east of County Road N).

The TCR for I-5 specifies LOS D as the 20-Year Concept LOS for I-5 in the vicinity of Orland.

Based on the Caltrans TCR for 32, LOS D or better will be considered acceptable for daily LOS on the following roadway segments. LOS E or worse will be considered unacceptable:

1) SR 32, east of I-5
2) SR 32 (Walker Street), east of County Road N

Based on the Caltrans TCR for SR 32, LOS E or better will be considered acceptable for daily LOS on the following roadway segments. LOS F or worse will be considered unacceptable:

1) SR 32 (Walker Street), east of 6th Street
2) SR 32 (Walker Street), east of Papst Avenue

The numbering of the roadway segments listed above is consistent with the numbering shown in **Figure 4.13-5**.

Based on the Caltrans TCR for SR 32 and I-5, LOS D or better will be considered acceptable for a.m. peak hour and p.m. peak hour LOS at the following intersections. LOS E or worse will be considered unacceptable.

1) Newville Road and I-5 Southbound Ramps
2) Newville Road (SR 32) and I-5 Northbound Ramps
3) Walker Street (SR 32) and 6th Street
4) SR 32 and County Road N
5) South Street and I-5 Southbound Ramps
6) South Street and I-5 Northbound Ramps

Based on the Caltrans TCR for SR 32, LOS E or better will be considered acceptable for a.m. peak hour and p.m. peak hour LOS at the following intersections. LOS F or worse will be considered unacceptable:

1) Walker Street (SR 32) and East Street
2) Walker Street (SR 32) and Pabst Avenue
3) SR 32 and County Road MM (Future)

The numbering of the intersections listed above is consistent with the numbering shown in **Figure 4.13-4**.

METHODOLOGY

KD Anderson and Associates prepared an analysis of traffic conditions associated with implementation of the proposed General Plan. It is available in **Appendix E** of this document. Traffic operations have been quantified through the determination of "Level of Service" (LOS). Level of Service is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment representing progressively worsening traffic conditions as discussed in **Tables 4.13-1** and **4.13-3**. Traffic count data collection reports are presented in **Appendix E**.

It should be noted that development through the year 2028 would not result in full buildout of the Planning Area (see **Figure 3.0-3**, Land Use Diagram, of the Project Description). The land use diagram provides for planning of growth in the Orland Planning Area through the year 2028.

Traffic studies of relatively small individual projects often analyze both the near-term direct impacts of an individual project, and the long-term cumulative impacts of a project in the context of area-wide growth. The Orland proposed General Plan is considered a project, as defined by CEQA. Yet, at the same time, area-wide growth is intrinsic to the proposed General Plan. Therefore, the analysis of 2028 conditions with the proposed General Plan is considered both the analysis if direct impacts, and the analysis of cumulative impacts.

Traffic Volume Forecasts

Land use development associated with the proposed General Plan would generate new vehicle trips. The general approach used to forecast traffic volumes for the proposed General Plan addresses future trips associated with the land use development and future trips with one or both ends of the trip outside of Orland.

Three categories of future trips in the Orland area were estimated for the purpose of this DEIR:

- New trips that would have both ends in the Orland Planning Area are referred to as "internal trips."
- New trips that would have one end in the Orland Planning Area and one end outside of the Planning Area are referred to as "external trips."
- New trips that would have both ends outside of the Planning area (i.e., trips passing through, but not stopping, in Orland) are referred to as "regional through trips."

Travel associated with these three categories of vehicle trips were added to existing traffic volumes to forecast future traffic volumes.

Overall Trip Generation

Estimates of vehicle trips that would be generated by land use development associated with the proposed General Plan were based on estimates of General Plan-related changes in land use. Industry-standard trip generation rates were applied to the land use quantities to estimate the number of vehicle trips.

The following is a summary of the General Plan-related land use developments assumed in this section"

- 1,209 single family dwelling units,
- 192 multiple family dwelling units,
- 290,610 building square feet of retail commercial uses,
- 8.90 acres of office land use,
- 61.97 acres of light industrial / commercial use, and
- 23.31 acres of heavy industrial use.

The changes in land use development were geographically distributed to areas expected to experience growth during the next 20 years. The land use development was disaggregated to "traffic analysis zones" (TAZs). TAZs used in the analysis conducted for this DEIR are presented in **Figure 4.13-7.**

The number of vehicle trips that are expected to be generated by development associated with the proposed General Plan has been estimated using typical trip generation rates that have been developed based on the nature and size of project land uses. Data compiled by the Institute of Transportation Engineers (ITE) and presented in the publication Trip Generation, 8th Edition (Institute of Transportation Engineers, 2008) is the source of trip generation rates used in this DEIR.

The trip generation rates used in this section are presented in **Table 4.13-5**. The trip generation rates were applied to the amount of project-related land uses. The resulting trip generation estimates for the daily period, a.m. peak hour, and p.m. peak hour are presented in **Table 4.13-6**.

It should be noted that **Table 4.13-6** does not present estimates of total trips generated by development associated with the proposed General Plan. No totals are presented because a substantial portion of the trips generated by land uses in Orland are linked to other land uses in Orland. For example, a substantial portion of the trips generated by retail commercial land uses in Orland are the same trips generated by residential land uses in Orland. Simply summing all of the trip generation estimates presented in **Table 4.13-6** would result in a substantial amount of "double counting."

Internal Trips

A majority of trips generated by future land use development in Orland would have both trip ends in Orland. This would include, for example, a shopping trip from a new residential dwelling unit in Orland to a new retail commercial building in Orland. Internal trips also include trips between two non-residential land uses. This would include, for example, someone leaving work at the end of the day, and shopping at a grocery store on the way home; one end of this trip is at the workplace; while the second end of the trip is at the grocery store.

Internal trips were estimated by matching trips made by residential land uses, employment-generating land uses, retail commercial land uses, and schools.

TABLE 4.13-5
ORLAND PROPOSED GENERAL PLAN TRIP GENERATION RATES

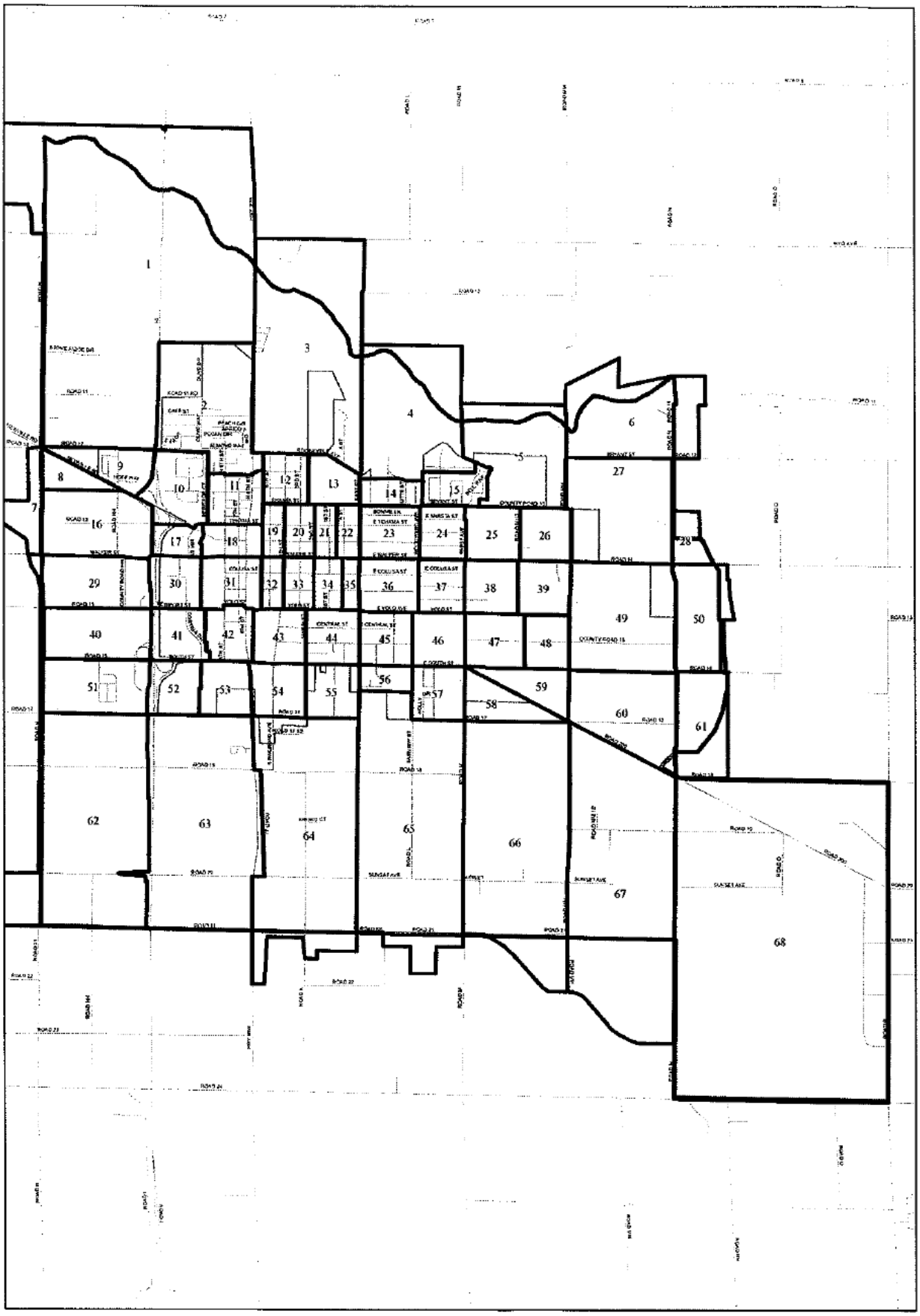
Land Use Category & ITE Land Use Code	Independent Variable	Vehicle Trip Rates						
			AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
Single Family Housing – 210	Dwelling Units	9.57	0.19	0.56	**0.75**	0.64	0.37	**1.01**
Multiple Family Housing – 220	Dwelling Units	6.65	0.10	0.41	**0.51**	0.40	0.22	**0.62**
Retail Commercial – 820	1,000 Square Feet	42.94	0.61	0.39	**1.00**	1.83	1.90	**3.73**
Office – 750	Acres	195.11	23.60	2.05	**25.65**	4.24	24.04	**28.28**
Light Industrial – 110	Acres	51.80	6.23	1.28	**7.51**	1.60	5.66	**7.26**
Heavy Industrial – 120	Acres	6.75	1.64	0.34	**1.98**	0.48	1.68	**2.16**

Notes: Totals may not equal the sum of the components due to rounding. Trip generation rates are from Institute of Transportation Engineer (ITE) Trip Generation, 8th Edition. Inbound and outbound percentages are not available in Trip Generation for Heavy Industrial, and are based on percentages for Light Industrial.
Source: KD Anderson and Associates, 2009.

TABLE 4.13-6
ORLAND PROPOSED GENERAL PLAN 2028 TRIP GENERATION ESTIMATES

Land Use Category & ITE Land Use Code	Amount of Land Use	Vehicle Trip Rates						
			AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
Single Family Housing – 210	1,165 Dwelling Units	11,149	221	652	**874**	746	431	**1,177**
Multiple Family Housing – 220	233 Dwelling Units	1,549	23	96	**119**	93	51	**144**
Retail Commercial – 820	308.8 1,000 Square Feet	13,261	188	120	**309**	565	587	**1,152**
Office – 750	9.46 Acres	1,845	223	19	**243**	40	227	**267**
Light Industrial – 110	61.97 Acres	3,210	386	79	**465**	99	351	**450**
Heavy Industrial – 120	23.31 Acres	157	38	8	**46**	11	39	**50**

Notes: Totals may not equal the sum of the components due to rounding. No trip generation is assumed for Open Space/Resource Conservation uses or for Public Facility uses. To avoid implied double-counting, no total is shown for the sum of all uses. Most of the trips shown for residential uses are the same trips also shown for non-residential. For example, a single trip to the grocery store is shown as a trip for "Single-Family Housing" and is also shown as a trip for "Retail Commercial."
Source: KD Anderson and Associates, 2009.



Source: KD Anderson, 2009

Figure 4.13-7
Traffic Analysis Zones

External Trips

A portion of trips generated by future land use development in the Orland Planning Area would have one end in Orland and the second end outside of the Planning Area. This would include, for example, a commute trip from a new residential dwelling unit in Orland to a place of employment located in Chico. For the purpose of this DEIR, external trips are assumed to leave the Orland Planning Area using:

- I-5 to the north,
- Newville Road to the west,
- SR 32 to the east, and
- I-5 to the south.

Regional through Trips

Some of the increase in traffic volumes in the Orland Planning Area would also result from an increase in regional background travel. These regional through trips would use roadways in Orland, but would not stop in Orland.

The increase in regional background travel would not be associated with land uses in Orland, but would result in an increase in traffic volumes on SR 32 and I-5. This increase in travel would be expected to occur regardless of the level of development assumed within the Planning Area.

Travel forecasts used in this DEIR section include increases in regional through trips. The amounts of increases assumed in this section are consistent with the *Transportation Concept Report State Route 32* (California Department of Transportation, 2007).

Trip Distribution

Trips resulting from development associated with the proposed General Plan and regional through trips were geographically distributed over the Planning Area roadway network. The geographical distribution of trips is based on the relative attractiveness or utility of possible destinations. Factors affecting trip distribution include:

- the location of destinations for the added trips,
- the magnitude of land uses that would attract the added trips, and
- the quality of access to the destinations via the roadway network.

The percentage of geographic distribution varied according to the amount type and location of land uses generating the added vehicle trips. As a result, no single set of percentages were used, and no single set of percentages can be presented for the purpose of this DEIR. However, as an example, the following are the categories of land uses as destinations for trips generated by residential land uses:

- schools (elementary school, middle school, high school, and community college),
- employment centers,
- retail commercial land uses,
- external destinations (outside of the Orland Planning Area).

The analysis conducted for the purpose of this DEIR assumed continued use of existing schools in Orland. No new schools were assumed. A portion of vehicle trips from new residential land uses

were distributed to these existing schools. Different distribution percentages were applied for different periods of the day. The percentages are presented in **Table 4.13-7**.

As noted previously, this section of the DEIR assumed a portion of the trips generated by new land use development in Orland would be external trips (i.e., trips with one end outside of the Orland Planning Area). The percentages presented in **Table 4.13-7** were applied to new residential land uses.

TABLE 4.13-7
TRIP DISTRIBUTION PERCENTAGES

Destination	Time Period		
	AM Peak Hour	PM Peak Hour	Daily
School Trips			
Mill Street School Traffic Analysis Zone 34	6%	0%	1.5%
Fairview School Traffic Analysis Zone 56	6%	0%	1.5%
Price Middle School Traffic Analysis Zone 43	6%	0%	1.5%
Orland High School Traffic Analysis Zone 13	8%	0%	2.0%
Butte College Traffic Analysis Zone 25	2%	0%	0.5%
External Trips			
North on I-5	2%	2%	2%
West on Newville Road	1%	1%	1%
East on SR 32	5%	5%	5%
South on I-5	2%	2%	2%

Note: Other internal trips were distributed based on the location of, magnitude of, and access to, trip destinations.
Source: KD Anderson and Associates, 2009.

Roadway Improvements

Roadway improvements assumed in the analysis of 2028 conditions under the proposed General Plan were identified in consultation with the City of Orland Engineer. No new major roadways were assumed in this section. However, the analysis did assume the following roadway improvements, which would directly support anticipated land use development:

- extension of Stony Creek Drive to the west,
- extension of Stony Creek Drive to Bryant Street,
- extension of County Road MM (Hambright Avenue) between Bryant Street and SR 32,
- extension of County Road MM (Hambright Avenue) between SR 32 and County Road 15 ½,
- widening of County Road 15 ½ between Papst Avenue and County Road N,
- signalization of the intersection of SR 32 and Papst Avenue,
- signalization of the intersection of SR 32 and Tehama Street (9th Street), and
- signalization of the intersection of SR 32 and County Road MM (Hambright Avenue).

Signalization of the intersection of SR 32 and Pabst Avenue would be consistent with Program 3.3.C.1 of the proposed General Plan.

Trip Assignment

Traffic that would be generated by development associated with the proposed General Plan and regional through trips was added to existing traffic volumes. **Figure 4.13-8** presents the traffic volumes added at each study intersection in the a.m. peak hour and p.m. peak hour. **Figure 4.13-9** presents the resulting 2028 General Plan conditions for traffic volumes anticipated for each study intersection in the peak hours. **Table 4.13-8** presents a summary of the resulting 2028 conditions of a.m. peak hour and p.m. peak hour LOS at the 13 existing study locations. **Table 4.13-9** presents the resulting 2028 conditions of daily traffic volumes anticipated for each study roadway segment. The worksheets presenting the calculation of LOS are presented in **Appendix E**.

TABLE 4.13-8
INTERSECTION LEVEL OF SERVICE – 2028 CONDITIONS

Intersection	Intersection Control	Acceptable LOS	2028 Conditions with Proposed General Plan				
			Signal Warrant Met?	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1. Newville Road& County Road HH	TWSC	D	Yes	18.4	C	244.3	F
2. Newville Road & I-5 Southbound Ramps	OWSC	D	Yes	15.7	C	253.9	F
3. Newville Road (SR 32) & I-5 Northbound Ramps	OWSC	D	Yes	31.3	D	421.4	F
4. 6th Street & Swift Street	TWSC	D	--	11.2	B	11.9	B
5. Walker Street (SR 32) & 6th Street	Signal	D	--	35.4	D	68.8	E
6. Walker Street (SR 32) & East Street	Signal	E	--	21.9	C	27.6	C
7. Walker Street (SR 32) & Papst Avenue	TWSC (Signal*)	E	--	17.1	B	20.6	C
8. SR 32 & County Road MM (Future)	Signal*	E	--	11.0	B	24.8	C
9. SR 32 & County Road N	TWSC	D	Yes	541.5	F	Overflow	
10. South Street & I-5 Southbound Ramps	TWSC	D	No	8.6	A	9.2	A
11. South Street & I-5 Northbound Ramps	OWSC	D	No	8.9	A	9.6	A
12. South Street & Cortina Drive	TWSC	D	No	12.0	B	14.5	B
13. South Street & 6th Street	Signal	D	--	19.9	B	21.6	C

Intersection	Intersection Control	Acceptable LOS	2028 Conditions with Proposed General Plan				
			Signal Warrant Met?	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
14. South Street & Papst Avenue	AWSC	D	No	9.5	A	9.0	A

Notes: "LOS" = Level of Service. "Signal" = Signalized. "Signal" = Signalized in the future. "TWSC" = Two-way stop-sign controlled. "OWSC" = One-way stop-sign controlled. "AWSC" = All-way stop-sign controlled. Delay is expressed in second per vehicle. Worst movement delay is shown for unsignalized intersections.*
Source: KD Anderson and Associates, 2009.

TABLE 4.13-9
DAILY ROADWAY SEGMENT VOLUMES AND LEVELS OF SERVICE – 2028 CONDITIONS

Roadway & Count Location	Functional Classification	Lanes	Capacity	Acceptable LOS	2028 Conditions with Proposed General Plan	
					Volume	LOS
1. Almond Way, between 6th Street & 8th Street	Local	2	4,500	C	1,025	A
2. Monterey Street, between 5th Street and 6th Street	Local	2	4,500	C	1,425	A
3. 6th Street, between Trinity Street & Shasta Street	Arterial	2	15,000	C	6,369	A
4. Tehama Street, between 5th Street and 6th Street	Minor Collector	2	8,000	C	1,822	A
5. Shasta Street, between Melanie Circle and Woodward Avenue	Local	2	4,500	C	1,386	A
6. Newville Road; west of County Road HH	Major Collector	2	12,700	C	5,146	A
7. County Road HH, south of Newville Road	Minor Collector	2	8,000	C	4,407	A
8. Tehama Street, northeast of SR 32	Minor Collector	2	8,000	C	1,832	A
9. 5th Street, north of Walker Street (SR 32)	Local	2	4,500	C	772	A
10. 5th Street, south of Walker Street (SR 32)	Local	2	4,500	C	1,451	A
11. 4th Street, north of Walker Street (SR 32)	Local	2	4,500	C	1,246	A
12. 4th Street, south of Walker Street (SR 32)	Minor Collector	2	8,000	C	2,207	A
13. 3rd Street, north of Walker Street (SR 32)	Local	2	4,500	C	1,151	A
14. 3rd Street, south of Walker Street (SR 32)	Local	2	4,500	C	1,298	A
15.2nd Street, north of Walker Street (SR 32)	Local	2	4,500	C	528	A
16. 2nd Street, south of Walker Street (SR 32)	Local	2	4,500	C	797	A
17. A Street, north of Walker Street (SR 32)	Local	2	4,500	C	243	A

Roadway & Count Location	Functional Classification	Lanes	Capacity	Acceptable LOS	2028 Conditions with Proposed General Plan	
					Volume	LOS
18. A Street, south of Walker Street (SR 32)	Local	2	4,500	C	436	A
19. East Street, north of Walker Street (SR 32)	Minor Collector	2	8,000	C	2,770	A
20. East Street, south of Walker Street (SR 32)	Minor Collector	2	8,000	C	3,270	A
21. Woodward Avenue, north of Walker Street (SR 32)	Local	2	4,500	C	2,271	A
22. County Road M1/2, north of Walker Street (SR 32)	Minor Collector	2	8,000	C	1,639	A
23. 4th Street, between Mill Street and Yolo Street	Minor Collector	2	8,000	C	1,442	A
24. Yolo Street, west of Papst Avenue	Local	2	4,500	C	1,222	A
25. County Road 16, west of County Road HH	Major Collector	2	12,700	C	1,726	A
26. Cortina Drive, north of South Street	Major Collector	2	12,700	C	1,691	A
27. 8th Street, north of South Street	Minor Collector	2	8,000	C	1,521	A
28. 6th Street, north of South Street	Arterial	2	15,000	C	5,536	A
29. 6th Street, south of South Street	Arterial	2	15,000	C	4,612	A
30. Railroad Avenue, north of South Street	Minor Collector	2	8,000	C	2,043	A
31. East Street, north of South Street	Minor Collector	2	8,000	C	2,461	A
32. South Street, west of Papst Avenue	Major Collector	2	12,700	C	4,036	A
33. Papst Avenue, south of South Street	Major Collector	2	12,700	C	1,326	A
34. South Street (County Road 200), west of County Road N	Major Collector	2	12,700	C	1,689	A
35.County Road N, north of South Street (County Road 200)	Major Collector	2	12,700	C	874	A
36. SR 32, east of I-5	Arterial	4	30,000	D	17,786	A
37. SR 32, (Walker Street), east of 6th Street	Arterial	2	15,000	E	22,650	F
38. SR 32 (Walker Street), east of Papst Avenue	Arterial	2	15,000	E	20,698	F
39. SR 32 (Walker Street), east of County Road N	Arterial	2	15,000	D	18,016	F

Source: KD Anderson and Associates, 2009.

IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED GENERAL PLAN

Increased Traffic Volumes on Local Intersections

Impact 4.13.1 Implementation of the proposed General Plan would result in increased traffic volumes and a decrease in LOS on area intersections. This is considered a **potentially significant** impact.

Tables 4.13-2 and **4.13-8** present the a.m. peak hour and p.m. peak hour LOS at each study intersection under existing conditions as well as 2028 conditions under the proposed General Plan respectively. The worksheets presenting the calculation of LOS are presented in **Appendix E**.

Under the proposed General Plan, traffic volumes in 2028 would be generally higher than under existing conditions. As a result, vehicle delay at study intersections would be higher than existing conditions.

Nine of the 14 study intersections during both the a.m. peak hour and the p.m. peak hour would operate at an acceptable LOS under 2028 General Plan conditions. No improvements are needed at these nine intersections. However, five study intersections would operate at unacceptable LOS under 2028 General Plan conditions.

#1 – Newville Road & County Road HH

Under 2028 General Plan conditions this intersection would operate at LOS C with 18.4 seconds of delay during the a.m. peak hour and LOS F with 244.3 seconds of delay during the p.m. peak hour. LOS F is considered unacceptable.

This intersection would meet peak hour signal warrants.

#2 – Newville Road & I-5 Southbound Ramps

Under 2028 General Plan conditions this intersection would operate at LOS C with 15.7 seconds of delay during the a.m. peak hour and LOS F with 253.9 seconds of delay during the p.m. peak hour. LOS F is considered unacceptable.

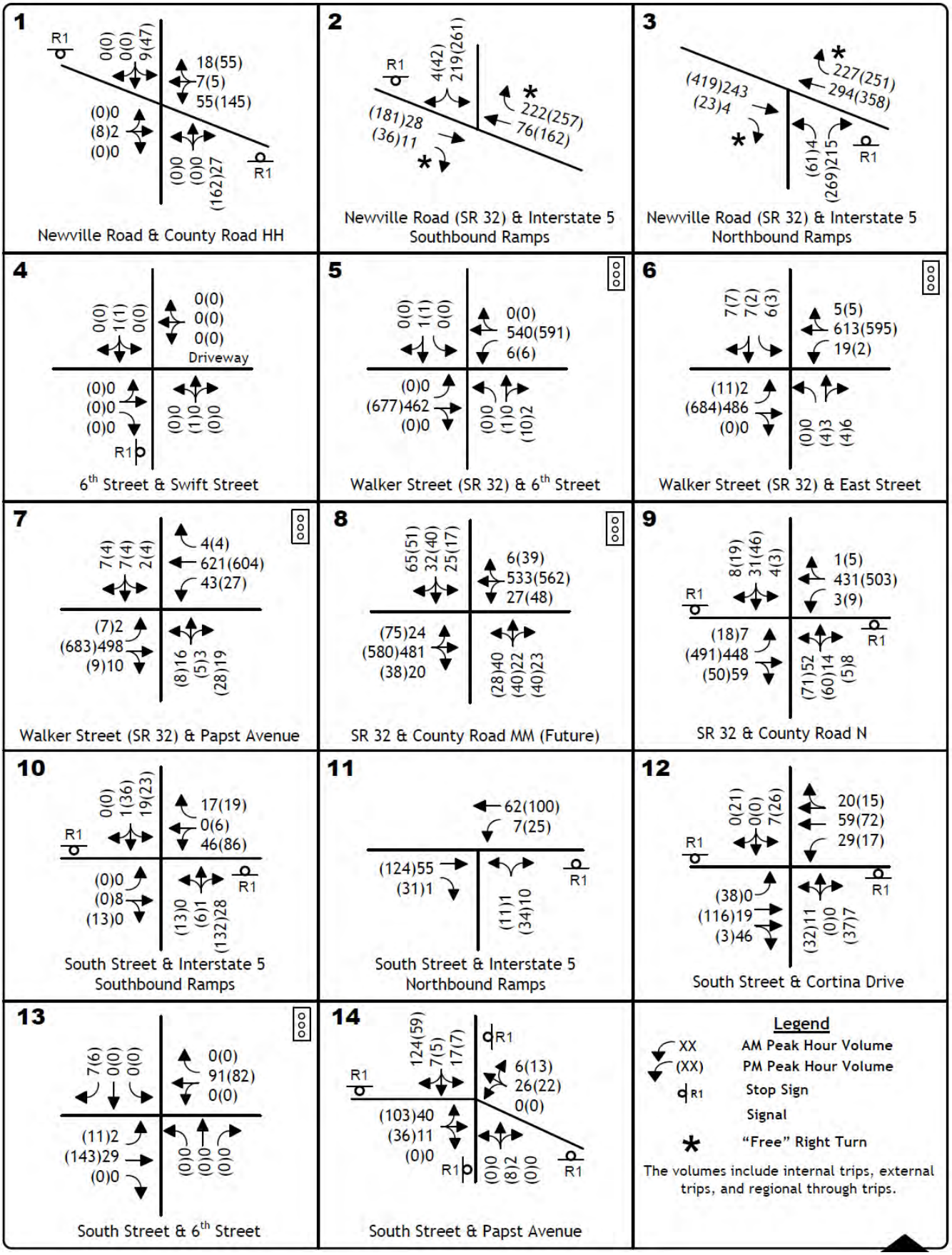
This intersection would meet peak hour signal warrants.

#3 – Newville Road & I-5 Northbound Ramps

Under 2028 General Plan conditions this intersection would operate at LOS D with 31.3 seconds of delay during the a.m. peak hour and LOS F with 421.4 seconds of delay during the p.m. peak hour. LOS F is considered unacceptable.

#5 – Walker Street (SR 32) & 6th Street

Under 2028 General Plan conditions this intersection would operate at LOS D with 35.4 seconds of delay during the a.m. peak hour and LOS E with 68.8 seconds of delay during the p.m. peak hour. LOS E is considered unacceptable.

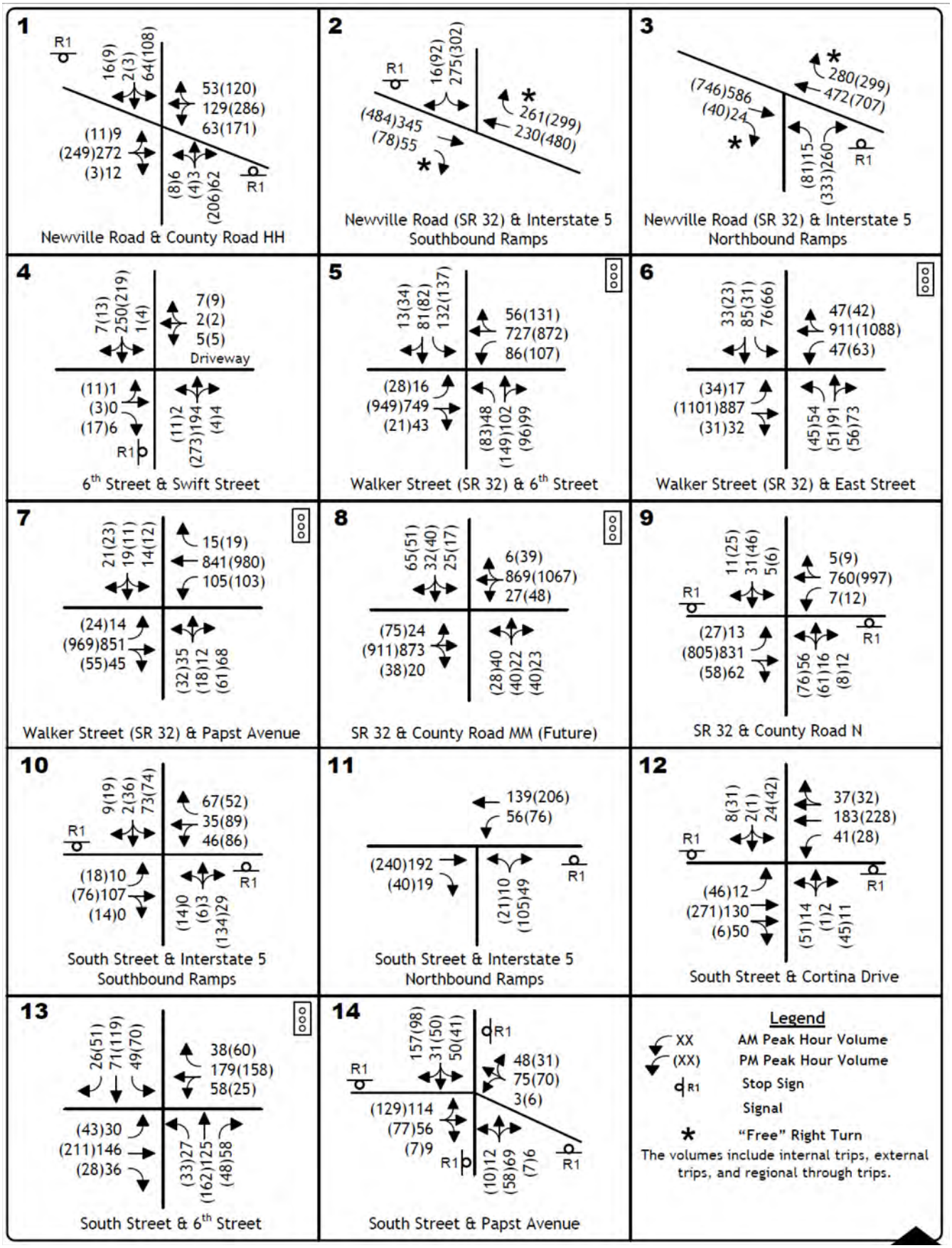


Source: KD Anderson, 2010

Figure 4.13-8

Future Added Traffic Volumes

PMC



Source: KD Anderson, 2010

Figure 4.13-9

2028 General Plan Conditions, Traffic Volumes, and Lane Configurations

#9 – SR 32 & County Road N

Under 2028 General Plan conditions this intersection would operate at LOS F with 541.5 seconds of delay during the a.m. peak hour and LOS F with overflow conditions during the p.m. peak hour. LOS F is considered unacceptable.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Circulation: Policy 3.1.A, Program 3.2.E.1, Program 3.2.E.2, Policy 3.3.C, Program 3.3.C.1, Policy 3.4.B, Policy 3.4.C

Policy 3.1.A mandates that the City develop and maintain a network of roads that is compatible with the general land use patterns of the City. Program 3.2.E.1 states that traffic studies of affected streets may be required as part of the environmental assessment of proposed projects to assure City-wide traffic service levels are maintained while Program 3.2.E.2 states that traffic studies shall include level-of-service forecasts to account for individual and cumulative major land use changes in the City. Level-of-service forecasts shall also be used to identify deficient roadways and update street improvement plans and priorities. Policy 3.3.B establishes an inventory of City roads which will determine priorities for meeting circulation and transportation needs. Transportation projects shall be prioritized with emphasis on enhancing safety, reducing traffic congestion, and improving traffic circulation. Policy 3.3.C states that the City shall install traffic control devices at intersections, as needed, for public health and safety and to reduce traffic congestion at key intersections throughout the City and associated Program 3.3.C.1 seeks to improve intersections operating at less than p.m. peak-hour level of service "D" conditions by adding appropriate turning lanes to congested approaches, widening intersection approaches, or installing traffic signals.

Mitigation Measures

MM 4.13.1 The following intersections shall be added to the City's Capital Improvement Program as part of implementation of proposed General Plan Policy 3.3.A.

#1 – Newville Road & County Road HH

- Signalize the intersection
- No additional lanes are necessary. However, the intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks).

With implementation of these measures, this intersection would operate at LOS B with 11.4 seconds of delay during the a.m. peak hour and LOS B with 17.0 seconds of delay during the p.m. peak hour. These LOS are considered acceptable.

#2 – Newville Road & I-5 Southbound Ramps

- Signalize the intersection
- No additional lanes are necessary. However, the intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks).

With implementation of these measures, this intersection would operate at LOS B with 17.1 seconds of delay during the a.m. peak hour and LOS C with 20.1 seconds of delay during the p.m. peak hour. These LOS are considered acceptable.

#3 – Newville Road & I-5 Northbound Ramps

- Signalize the intersection
- No additional lanes are necessary. However, the intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks).

With implementation of these measures, this intersection would operate at LOS B with 15.8 seconds of delay during the a.m. peak hour and LOS C with 24.3 seconds of delay during the p.m. peak hour. These LOS are considered acceptable.

#5 – Walker Street (SR 32) & 6th Street

- Split the northbound combined through/right-turn lane into an exclusive northbound through lane, and an exclusive northbound-to-eastbound right-turn lane.

With implementation of this measure, this intersection would operate at LOS C with 27.0 seconds of delay during the a.m. peak hour and LOS D with 47.8 seconds of delay during the p.m. peak hour. These LOS are considered acceptable.

#9 – SR 32 & County Road N

- Signalize the intersection
- No additional lanes are necessary. However, the intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks).

With implementation of these measures, this intersection would operate at LOS A with 9.9 seconds of delay during the a.m. peak hour and LOS B with 18.8 seconds of delay during the p.m. peak hour. These LOS are considered acceptable.

Table 4.13-10 presents the a.m. peak hour and p.m. peak hour LOS at these five study intersections with implementation of these mitigation measures.

TABLE 4.13-10
INTERSECTION LEVEL OF SERVICE -- MITIGATED

Intersection	Intersection Control	Acceptable LOS	2028 Conditions with the Proposed General Plan			
			AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1. Newville Road and County Road HH	Signal	D	11.4	B	17.0	B
2. Newville Road and I-5 Southbound Ramps	Signal	D	17.1	B	20.1	C
3. Newville Road (SR 32) and I-5 Northbound Ramps	Signal	D	15.8	B	24.3	C
5. Walker Street (SR 32) and 6th Street	Signal	D	27.0	C	47.8	D
9. SR 32 and County Road N	Signal	D	9.9	A	18.8	B

*Notes: Delay is expressed in seconds per vehicle. The worksheets presenting the calculation of LOS with mitigation measures are shown in **Appendix E**.*
Source: KD Anderson and Associates, 2009.

As previously stated, nine of the 14 study intersections during both the a.m. peak hour and the p.m. peak hour would operate at an acceptable LOS under 2028 General Plan conditions. Implementation of mitigation measure **MM 4.13.1** would reduce impacts to the remaining five study intersection to a level that is **less than significant**.

Increased Traffic Volumes on Local Roadways

Impact 4.13.2 Implementation of the proposed General Plan would result in increased traffic volumes and a decrease in LOS on area roadways. This is considered a **potentially significant** impact.

Tables 4.13-3 and **4.13-9** present a summary of LOS on the 39 study roadway segments under existing conditions as well as 2028 conditions under the proposed General Plan respectively. 36 of the roadway segments would operate at acceptable LOS. No improvements are needed on these 36 roadway segments. However, the following three roadway segments would operate at unacceptable LOS.

- SR 32 (Walker Street), east of 6th Street;
- SR 32 (Walker Street), east of Papst Avenue; and
- SR 32 (Walker Street), east of County Road N.

Traffic volumes on these three roadway segments would increase substantially from existing conditions to 2028 conditions under the proposed General Plan. The large majority of the increase in traffic volumes would be due to an increase in regional through trips – traffic not related to land use development in Orland. If, hypothetically, there was no future land use

development in Orland, these three roadway segments would operate at unacceptable LOS in the future because of the increase in regional through trips. Conversely, if there was no future increase in regional through trips, these three roadway segments would operate at acceptable LOS in the future even with future land use development in Orland.

As noted previously in the *Roadway Segment Level of Service Analysis Procedures* subsection on page 17 of this Transportation and Circulation section, the daily roadway segment LOS analysis approximates LOS at the most congested intersections during the peak period of the day. While roadway segment LOS analysis is inherently generalized, intersection LOS analysis is more detailed and specific.

The unacceptable LOS at the three roadway segments listed above would be consistent with peak hour LOS at intersections along the roadway segments, if the intersections remained in their current unimproved condition. Without future improvements and mitigation, the following intersections would operate at unacceptable LOS under the proposed General Plan in 2028.

- Walker Street (SR 32) and 6th Street,
- Walker Street (SR 32) and Papst Avenue, and
- SR 32 and County Road N.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Circulation: Policy 3.1.A, Program 3.2.E.1, Program 3.2.E.2, Policy 3.3.C, Policy 3.4.B, Policy 3.4.C

Policy 3.1.A mandates that the City develop and maintain a network of roads that is compatible with the general land use patterns of the City. Program 3.2.E.1 states that traffic studies of affected streets may be required as part of the environmental assessment of proposed projects to assure City-wide traffic service levels are maintained while Program 3.2.E.2 states that traffic studies shall include level-of-service forecasts to account for individual and cumulative major land use changes in the City. Level-of-service forecasts shall also be used to identify deficient roadways and update street improvement plans and priorities. Policy 3.3.B establishes an inventory of City roads which will determine priorities for meeting circulation and transportation needs. Transportation projects shall be prioritized with emphasis on enhancing safety, reducing traffic congestion, and improving traffic circulation. Policy 3.3.C states that the City shall install traffic control devices at intersections, as needed, for public health and safety and to reduce traffic congestion at key intersections throughout the City.

Mitigation Measures

Implementation of intersection mitigation measures described under mitigation measure **MM 4.13.1**, such as the planned signalization of the intersection of Walker Street (SR 32) and Papst Avenue and the planned signalization of the intersection of SR 32 and County Road N would result in acceptable traffic operating conditions in this portion of Walker Street (SR 32). Because mitigation measure **MM 4.13.1** would result in acceptable traffic operating conditions, the impact on roadway segment LOS would be reduced to a **less than significant** level.

Public Transportation

Impact 4.13.3 Implementation of the proposed General Plan would result in an increase in the demand for transit service. This is considered a **less than significant** impact.

Implementation of the proposed General Plan would result in an increase in demand for public transportation services. Currently, there is limited direct public transportation service to the City. The frequency and proximity of future public transportation service is not known at this time.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Circulation: Policy 3.6.A, Program 3.6.A.1, Policy 3.6.B, Program 3.6.B.1, Policy 3.6.C, Policy 3.6.D

Policy 3.6.A states that planning and development of Arterial and Major Collector streets shall include design features that can be used as public transit stops while associated program 3.6.A.1 mandates that Arterial and Major Collector streets shall be designed to provide for bus pull-outs and transit stops at locations determined by the City. Policy 3.6.B encourages the use of car-pooling, vanpooling and flexible employment hours and Program 3.6.B.1 states that new development shall consider Transportation System Management and Transportation Demand Management as strategies for the mitigation of traffic and parking congestion. Public transit, traffic management, ride sharing and parking management are to be used to the greatest extent practical. Policy 3.6.C coordinates with regional transit planners to determine the feasibility of developing and/or improving commuter bus service. Policy 3.6.D supports the continuation of transportation programs provided by social service agencies.

Implementation of these policies and programs would result in improvements to public transportation service in the Orland Planning Area. This impact is considered to be **less than significant.**

Mitigation Measures

None required.

Bicycle and Pedestrian Facilities

Impact 4.13.4 Implementation of the proposed General Plan would result in an increased demand for bicycle and pedestrian facilities. This is considered a **less than significant** impact.

Implementation of the proposed General Plan would result in an increase in demand for bicycle and pedestrian facilities. The relatively mild climate, flat terrain, and modest size of the City provide opportunities for bicycling and walking as alternative forms of transportation.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Circulation: Policy 3.7.A, Policy 3.7.B, Policy 3.7.C, Policy 3.7.D, Policy 3.8.A, Policy 3.8.B, Program 3.8.B.1, Policy 3.8.C, Policy 3.8.D, Policy 3.8.E

Policy 3.7.A states that the City shall support the concept of an east/west multi-modal circulation link in north Orland and Policy 3.7.B seeks to utilize canal rights-of-way and drainage facilities for multi-use purposes, to include trails. Policy 3.7.C prioritizes the creation of linkages between public places (schools, parks, government buildings) to facilitate the movement of people through the City. Policy 3.7.D mandates that the City shall prioritize the establishment of a pedestrian crossing of Highway 32 linking residences to parks while Policy 3.8.A states that adequate sidewalks shall be planned and constructed in connection with street construction work in the City. Furthermore, Policy 3.8.B states that subdivision layouts shall include designs that promote pedestrian circulation in a safe and efficient manner and associated Program 3.8.B.1

seeks to implement street standards that include sidewalk or walkways on both sides of streets, where appropriate.

Policy 3.8.C states that bicycle lanes should be established where feasible along Major and Minor Collectors in newly developing areas and Policy 3.8.D encourages existing facilities and require future facilities to conform to the American Disabilities Act provisions requiring access for disabled persons. Meanwhile, Policy 3.8.E maximizes the use of rights-of-way, easements, and utility corridors through the installation of pedestrian and bicycle facilities.

Implementation of these policies and programs would result in improvement to bicycle and pedestrian facilities in the Orland Planning Area. This impact is considered to be **less than significant**.

Mitigation Measures

None required.

Right of Way Preservation

Impact 4.13.5 Implementation of the proposed General Plan would result in an increased demand for roadway capacity. This is considered a **less than significant** impact.

Implementation of the proposed General Plan would result in an increase in demand for roadway capacity. The proposed General Plan includes a proposed circulation system (**Figure 4.13-2**) to meet future demands. An important component of implementing the proposed circulation system is the preservation of land right-of-way in transportation corridors.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Circulation: Policy 3.2.A, Program 3.2.A.1, Program 3.2.A.2, Program 3.2.A.3, Policy 3.2.C, Program 3.2.C.1, Policy 3.2.D, Program 3.2.D.1, Program 3.2.D.2, Policy 3.2.H

Policy 3.2.A states that locations of Major Collector street intersections with Arterial streets shall be fixed by the Circulation Plan map. Roadway dedications and development design shall implement the Circulation Plan. Location of Major Collector alignments in newly developing areas shall be logical and efficient, and established early in the development process to aid in the consistent design of subdivisions. No development will be allowed to be constructed which would conflict with future planned streets or setbacks. Associated Program 3.2.A.1 encourages property owners in newly developing areas to prepare Master Plans or Specific Plans that identify future major street alignments. The City will participate in the design of street alignments in advance of development to ensure consistent and logical design of the circulation system. Program 3.2.A.2 continues to work with Glenn County to coordinate new street alignments and improvements while Program 3.2.A.3 pursues the reservation of right-of-way and define specific development standards and requirements through the preparation and adoption of road line plans, which prescribe right-of-way, street width, and the arrangement of sidewalks and bike lanes.

Policy 3.2.C states that all streets, roads and easements within the City Planning Area shall be offered for dedication to the City and all improvements and rights-of-way shall be developed to City standards and associated Program 3.2.C.1 states that the ultimate right-of-way shall be dedicated and/or developed to the appropriate width when a zone change to a greater

density or intensity, division of property, or new development or major remodeling occurs. Policy 3.2.D mandates that on developed streets, where the existing right-of-way does not meet the current standards, the City will adopt programs to acquire the ultimate right-of-way where practical and determined to be necessary or desirable. Program 3.2.D.1 includes the acquisition of right-of-way and the construction or reconstruction of streets in its Capital Improvement Program and Program 3.2.D.2 seeks additional right-of-way on the east side of Papst Avenue, 400 feet south of Bryant Street, and at Papst and Highway 32, to be acquired for City standard road widths. Policy 3.2.H ensures that adequate and safe travel-ways can be developed through existing developed areas of the City.

Implementation of these policies and programs would result in the preservation of right-of-way for the proposed circulation system in the Orland Planning Area. This impact is considered to be **less than significant**.

Mitigation Measures

None required.

4.13.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

CUMULATIVE SETTING

Anticipated development pursuant to the proposed General Plan would contribute to increased traffic at local intersections and roadways as well as to SR 32 and I-5 as discussed previously. This would affect the level of service of the roadways and intersections connecting to the roadways. Furthermore, the increase in housing and employment opportunities in the City would add more interregional traffic.

Consistent with the 20-year planning horizon for the proposed City of Orland General Plan, an assessment of potential circulation impacts in the year 2028 is provided above. However, as noted previously, development through the year 2028 would not result in full buildout of the land use diagram (**Figure 3.0-3** of the Project Description) for the proposed General Plan. This is because the theoretical buildout of the proposed General Plan land uses is extraordinarily high and virtually unattainable within the planning period of the General Plan (2008-2028). Therefore, the land use diagram provides for planning of growth in the Orland Planning Area beyond the year 2028.

Specific land use development forecasts are not available for the period beyond the 20-year planning horizon for the proposed General Plan. Therefore, a detailed quantitative analysis of traffic operating conditions beyond the 20-year period has not been conducted. The following presents a screening-level assessment of potential cumulative circulation impacts beyond the 20-year planning horizon.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

State Route 32

Impact 4.13.6 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase traffic volumes on SR 32 through the year 2028 and beyond the General Plan 20-

year planning horizon. The proposed General Plan's contribution to these conditions is considered **potentially cumulatively considerable**.

Beyond the 20-year planning horizon of the proposed General Plan, traffic volumes on SR 32 would continue to increase. The increase would result from both land use development in Orland and from regional through trips unrelated to development in Orland.

Caltrans is the agency responsible for SR 32. The *Transportation Concept Report State Route 32* (California Department of Transportation, 2007) is Caltrans' long range planning document for SR 32. This Report (page 5) provides a description of improvements recommended by Caltrans for the portion of SR 32 in the Orland Planning Area. The following are excerpts from this document:

> "Both the City of Orland and Glenn County have indicated the need for future expansion of SR 32 to four lanes. Due to the existing right of way restrictions west of Papst Avenue, the expansion to four lanes will be limited to the portion of SR 32 between Papst Avenue and County Road N. To lessen the environmental and aesthetic impacts that a road widening can have on a main street highway, it is suggested that curbs, gutters, sidewalks and landscaping be included in the design of future capacity improvements."

The Transportation Concept Report State Route 32 refers to "segments" of SR 32:

- Segment 1 is from I-5 to 6th Street,
- Segment 2 is from 6th Street to County Road N, and
- Segment 3 is from County Road N to SR 45 (east Orland).

The *Transportation Concept Report State Route 32* presents the following description of an "Orland Truck Bypass":

> "Glenn County has submitted a $1.3 million dollar 2006 STIP augmentation candidate to widen and rehabilitate County Road 27 from I-5 to County Road P, continuing north on County Road P to SR 32. This project is planned to ultimately act as a truck bypass of Orland (Segments 1 and 2) connecting I-5 to Segment 3."

The *Transportation Concept Report State Route 32* presents the following descriptions of "Conceptual Improvements" with estimated construction costs in thousands of dollars and estimated construction completion year:

- "Expansion of east/west parallel facilities, to be integrated in planned development (cost to be identified; 2010)

- "Widen to four lanes with left-turn lane channelization from Papst Avenue to County Road N ($2,678; 2015/2020)

- "Traffic signals SR 32 at Papst, Hambright Road, Orland Park, and County Road N, with intersection improvements when warranted (Locally funded -- $1,000; 2007/2010)

- "Curbs, gutters and sidewalks east of East Street should be considered in conjunction with planned development (to be part of development)"

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Circulation: Program 3.3.C.1, Policy 3.4.B

Program 3.3.C.1 states that signalization shall be considered at the intersection of SR 32 and the northbound ramps at Interstate 5 while Policy 3.4.B mandates that the City shall work with Caltrans to identify needed improvements to its highway facilities in the City and implement necessary programs to assist in improving State Route interchanges/intersections with local roadways.

Mitigation Measures

MM 4.13.6 The following mitigation measure shall be added as a new policy under Goal 3.4 of the proposed General Plan:

The City shall participate in regional roadway facility improvement programs established by Glenn County and/or Caltrans in order to address its fair-share of traffic impacts.

The long term post-2028 increase in traffic volumes on SR 32 would adversely affect traffic operations. Implementing Program 3.3.C.1, Policy 3.4.B, and mitigation measure **MM 4.13.6** as well as the improvements recommended by Caltrans in the *Transportation Concept Report State Route 32* would reduce this impact; however, until such time that the improvements identified in the *Transportation Concept Report State Route 32* are programmed and funded their implementation cannot be ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

East-West Roadways

Impact 4.13.7 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional east-west roadway capacity. This is considered **cumulatively considerable**.

The circulation system in the Orland Planning Area includes several north-south roadways, including I-5, 8th Street, 6th Street, East Street, Papst Avenue, and County Road N. In part because of I-5 and the railroad tracks, east-west roadways are more limited, with SR 32 and South Street being the main east-west roadways. This pattern of roadways results in the circulation system having greater capacity in the north-south direction and relatively less capacity in the east-west direction.

In the future, demand for additional east-west roadway capacity will increase. As noted previously, the increase in demand would result from both land use development in Orland and from regional through trips unrelated to development in Orland. Caltrans has noted the expected increase in demand, recommending in the *Transportation Concept Report State Route 32* (California Department of Transportation, 2007), "Expansion of east/west parallel facilities, to be integrated in planned development…"

The proposed General Plan circulation system includes extension of Stony Creek Drive to both the west and east. The extension of Stony Creek Drive would provide additional east-west capacity through the northern part of the City. Further additions to east-west capacity in the

northern part of the City are constrained by existing land use development and the presence of Stony Creek waterway.

Development beyond the 20-year proposed General Plan planning period (known as buildout) in the area south of South Street would be substantial. As shown in **Figure 3.0-3** of the Project Description, buildout development would include:

- Low Density Residential, Light Industrial/Commercial, and Heavy Industrial development between the current City Limits and County Road 18;
- Light Industrial/Commercial, and Heavy Industrial development in the vicinity of Haigh Field; and
- Residential Estate development between County Road 18 and County Road 20.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed City of Orland General Plan contains no policies or programs that would assist in reducing potential impacts to east-west roadways specifically. However, the policies and programs listed under **Impacts 4.13.1** and **4.13.2** would assist in reducing impacts to east-west roadways.

Buildout development would not occur until beyond the 20-year General Plan planning horizon and would be approximately equal in size to the existing City. Because of the current limitation on east-west capacity, this development would result in substantial demand for additional east-west capacity. In order to reduce this impact to a less than significant level, the City should reserve right-of-way along the County Road 18 corridor as land use development occurs in the corridor. The right-of-way should be wide enough for a four-lane roadway. In the future, as more is known about the size and nature of development in the corridor, quantitative analysis should be conducted to identify the specific improvements that should be implemented. As noted above, mitigation measure **MM 4.13.6** states that the City shall participate in regional roadway facility improvement programs established by Glenn County and/or Caltrans in order to address its fair-share of traffic impacts.

However, until such time that the right-of-way along the County Road 18 corridor is able to be reserved by the City and the recommended quantitative analysis and subsequent improvements are programmed and funded, their implementation cannot be ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

Mitigation Measures

None available.

County Road HH

Impact 4.13.8 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road HH. This is considered **cumulatively considerable**.

Extending County Road HH to the south from its current terminus at County Road 15 to County Road 16 is included in the proposed General Plan. Both widening and extending County Road HH would be needed to support land use development in this area on the west side of I-5.

It is recommended that the alignment of the County Road HH traverse to the southwest from the current terminus at County Road 15 to provide a minimum of 500 feet of spacing between the existing intersection of South Street (County Road 16) and I-5 southbound ramps and the future intersection of County Road HH and County Road 16 (KD Anderson and Associates, 2009). Providing adequate spacing between these two intersections would prevent queues from one intersection interfering with operation of the other intersection.

The alignment of County Road HH is off-set at the intersection with County Road 14. A distance of about 100 feet currently exists at the intersection. As County Road HH would function as a north-south collector, elimination of the off-set at the intersection is recommended to improve the capacity of the intersection and the roadway (KD Anderson and Associates, 2009). This would require right-of-way acquisition and would affect existing structures. Land at one of the corners of the intersection would need to be acquired to align the roadway at the County Road 14 intersections.

The off-set alignment of County Road HH at County Road 14 would reduce the capacity of County Road HH and impair the ability of County Road HH to function as a collector roadway. Locating the intersection of County Road HH and County Road 16 less than 500 feet away from the intersection of South Street (County Road 16) and the I-5 southbound ramps would result in a potential interference between these two intersections.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed City of Orland General Plan contains no policies or programs that would assist in reducing potential cumulative impacts to County Road HH specifically.

In order to reduce this impact to a less than significant level, realigning County Road HH and County Road 14 would be required as well as locating the intersection of County Road HH and County Road 16 a minimum of 500 feet away from the intersection of South Street (County Road 16) and I-5 southbound ramps. As noted above, mitigation measure **MM 4.13.6** states that the City shall participate in regional roadway facility improvement programs established by Glenn County and/or Caltrans in order to address its fair-share of traffic impacts. Until such time that these improvements are programmed and funded, their implementation cannot be ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

Mitigation Measures

None available.

County Road 20

Impact 4.13.9 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional roadway capacity on County Road 20. This is considered **cumulatively considerable**.

Currently, access to I-5 in the Orland Planning Area is limited to two interchanges: at SR 32 and at South Street. An analysis of traffic operations at these two interchanges is discussed above. The analysis indicates these two interchanges, with recommended improvements, would operate at acceptable levels through the 20-year proposed General Plan planning period.

The occurrence of buildout of the City Land Use Diagram in the long term future will result in development along the southern portion of the Orland Planning Area which would lead to an increase in demand for access to I-5. The level of this demand has not been quantitatively analyzed. However, because of the current limited access to I-5 it is possible that General Plan buildout would result in the need for an additional I-5 interchange.

When freeway interchanges are located too close to one another, merging, diverging, and weaving movements at one interchange interfere with vehicle movements at the next interchange. In urbanized areas, freeway interchanges should be located at least one mile apart to avoid this interference. County Road 18 is one-half mile south of the existing I-5 interchange at South Street. Therefore, an additional I-5 interchange should not be constructed at County Road 18.

County Road 20 is located one mile south of the existing I-5 interchange at South Street. Because of its location in the southern portion of the Planning Area, locating an interchange at the County Road 20 crossing of I-5 would be logical. It is important to note, however, additional quantitative analysis would be needed in the future to determine the need for the additional interchange.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed City of Orland General Plan contains no policies or programs that would assist in reducing potential cumulative impacts to County Road 20 specifically.

To reduce this impact to a less than significant level, the City should reserve right-of-way along the County Road 20 corridor as land use development occurs in the corridor. The right-of-way should be wide enough for a four-lane roadway and should include enough right-of-way for an interchange at I-5. In the future, as more is known about the size and nature of development in the corridor, quantitative analysis should be conducted to identify the specific improvements that should be implemented. As noted above, mitigation measure **MM 4.13.6** states that the City shall participate in regional roadway facility improvement programs established by Glenn County and/or Caltrans in order to address its fair-share of traffic impacts. Until such time that these actions are programmed and funded their implementation cannot be ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

Mitigation Measures

None available.

REFERENCES

City of Orland. 2008. *City of Orland General Plan Background Report*. March 2008.

KD Anderson and Associates Inc. 2009. *Traffic Impact Study for the City of Orland General Plan Update*. July 9, 2009.

5.0 CUMULATIVE IMPACTS

This section summarizes the cumulative impacts associated with the proposed project using the same environmental issue areas as Section 4.0, Introduction to the Environmental Analysis and Assumptions Used. Cumulative impacts are the result of combining the potential effects of the project (i.e., the proposed General Plan) with other existing, approved, planned and reasonably foreseeable development projects. The following discussion considers the cumulative impacts of the relevant environmental issue areas.

5.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) contain an assessment of the cumulative impacts that could be associated with the proposed project. According to State CEQA Guidelines Section 15130(a), "an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable." "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (as defined by Section 15130). As defined in State CEQA Guidelines Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. A cumulative impact occurs from:

> *…the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.*

In addition, Section 15130(b) identifies that the following elements are necessary for an adequate cumulative analysis:

1) *Either:*

   (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or,

   (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.

2) *A definition of the geographic scope of the area affected by the cumulative effect and a reasonable explanation for the geographic limitation used;*

3) *A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available; and*

4) *A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.*

Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

Future growth in the General Plan Planning Area is guided by the land uses identified in the proposed General Plan Land Use Diagram (see **Figure 3.0-3**). In the Draft EIR, impact analysis of both temporary [i.e. construction-related] and operational effects is based on these proposed land use patterns. However, because the theoretical buildout of the proposed General Plan land uses is extraordinarily high and virtually unattainable within the planning period (2008-2028) of the proposed General Plan, (see Section 4.0 for a full discussion), an analysis of the population and housing growth expected by 2028 was completed. These population and employment projections are in turn used to derive projections of future traffic volumes, air emissions, and traffic noise. This section also contains a list of projects as called for in Section 15130(b)(1)(A) (**Table 4.0-7**). This list is provided to amplify information subsumed in the local/regional projections, and to complement those projections with information regarding planned or ongoing infrastructure, regulatory, or other changes that are not always captured by the projections method.

It is often necessary in evaluating cumulative impacts to distinguish two related questions: 1) Is the impact that would be caused by cumulative conditions significant? And, 2) Is the project's incremental effect cumulatively considerable? The need for cumulative impact assessment considers the fact that a project may cause an incremental impact that is minor or limited by itself and therefore not significant, but that the incremental impact may be significant when, combined with other projects, the overall result is "cumulatively considerable". Certainly, a project's impacts may also be significant on both an incremental basis and the cumulative basis.

Not all cumulative impacts can be or need to be evaluated on the basis of both questions. For example, it is important in considering the criteria for evaluation of cumulative impacts in the context of a DEIR for a general plan to note related comments in the CEQA Guidelines that an incremental contribution to a significant cumulative impact (e.g. on a regional basis) may be rendered less than cumulatively considerable by a project's participation in a previously approved plan or mitigation program that addresses the cumulative issue. The Guidelines state:

> A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans and programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. (CEQA Guidelines, 15064, subd. (h)(3))

5.2 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

This subsection is an analysis of the proposed project's contribution to cumulative impacts to the environment. The analysis focuses on whether the project's contribution is "cumulatively considerable" (State CEQA Guidelines Section 15130). Accordingly, the cumulative setting includes related past, present, and reasonably foreseeable projects in the region. Identified

below is a compilation of the cumulative impacts that would result from the implementation of the project and future development in the vicinity.

AESTHETICS/LIGHT AND GLARE

Cumulative Setting

The cumulative setting for visual resources includes the viewshed of existing, proposed, approved, and reasonably foreseeable developments in the Planning Area and surrounding areas of Glenn County. The Planning Area does not contain any scenic highways or scenic resource areas except Hambright and Stony creeks located north and outside of the city limits in the unincorporated area of Glenn County.

Cumulative Impacts and Mitigation Measures

Cumulative Impacts to Aesthetics and Light and Glare

Impact 4.1.5 Implementation of the proposed General Plan will encourage new development activities that could degrade the existing visual character or quality of the City. This impact is **less than cumulatively considerable**.

As noted in Section 4.1, Aesthetics, Impact 4.1.1, future growth in the City could have substantial impacts on the local landscape. New development could also be incremental in terms of cumulative regional impacts. The conversion of areas of the City from their current rural visual character to a more urban character could result in a cumulatively considerable change in the visual character of the City, as well as obstruct views and scenic vistas. Implementation of the proposed General Plan could result in a cumulatively considerable contribution to the overall urbanization of the region with corresponding visual impacts.

Mitigation Measures

Implementation of the proposed General Plan's policies and programs identified under Impacts 4.1.1 through 4.1.4, as well as existing zoning regulations, would substantially reduce the alteration of visual character, obstruction of scenic vistas, and light/glare impacts within the City. As a result, cumulative impacts are considered to be **less than cumulatively considerable.**

AGRICULTURAL RESOURCES

Cumulative Setting

The cumulative setting for agricultural resources includes existing, approved, proposed, and reasonably foreseeable development within the Planning Area and Glenn County. The City and Glenn County contain Prime Farmland and Farmland of Local Importance. An issue of concern in California is the conversion of farmland, especially Prime Farmland, to non-agricultural land uses. The primary concern is the conversion of farmland to urban uses, such as residential development. Once farmland is used for urban development, it is essentially lost as an agricultural resource. Since the Sacramento Valley is more dependent on agriculture than California as a whole, changes in agricultural production and sales would have a greater economic impact. It also means that the conversion of agricultural lands to other uses would have a greater impact on the economy in the Sacramento Valley (including Orland) than in

California overall. Under cumulative conditions, agricultural land will continue to be converted to urban uses as the population increases in Glenn County and the Sacramento Valley.

Cumulative Impacts and Mitigation Measures

Cumulative Impacts to Agricultural Resources

Impact 4.2.4 Implementation of the proposed General Plan, in addition to existing, proposed, approved, and reasonably foreseeable development in Glenn County, would contribute to cumulative land conflicts. This would be a **cumulatively considerable** impact.

As discussed throughout Section 4.2, subsequent land use activities associated with implementation of the proposed General Plan could result in the conversion of, and/or conflict with, agricultural resources in the City. Under cumulative conditions, the proposed General Plan and subsequent development would not contribute to significant impacts associated with land use conflicts beyond those discussed in Impact 4.2.2 and Impact 4.2.3. Land use conflicts, particularly those between urban and agricultural resources, that would occur under cumulative development conditions would also be site-specific. However, as discussed in Impact 4.2.1, General Plan policies and programs listed previously would not reduce the loss of agricultural land to a less than significant level. While mitigation measure **MM 4.2.1** would preserve agricultural lands, it is not known whether these lands would be preserved within the local region. As a result, the proposed General Plan would result in a cumulative direct loss of agricultural land within the area. Implementation of the General Plan would contribute substantially to farmland conversion in the region and is a cumulatively considerable and significant and unavoidable consequence of the intensification of development proposed in the General Plan.

Mitigation Measures

Implementation of proposed General Plan policies, programs, and the mitigation measure described under Impacts 4.2.1 through 4.2.3 would reduce the proposed General Plan's contribution to cumulative impacts to agricultural resources. However, implementation of the General Plan Land Use Diagram would still contribute incrementally to substantial cumulative impacts on agricultural resources in the region as a result of urban development. This impact is **cumulatively considerable** and is considered a **significant and unavoidable** impact.

AIR QUALITY

Cumulative Setting

The cumulative setting for air quality includes existing, approved, proposed, and reasonably foreseeable development within the Northern Sacramento Valley Air Basin (NSVAB), which is a seven-county region. Glenn County, which includes the City of Orland, is one of two counties in the NSVAB that are in nonattainment status of state standards for ozone. Glenn and Colusa counties are in "nonattainment-transitional" status. Butte, Yuba, and Sutter counties are in nonattainment status for federal 1-hour ozone standards, while Butte County and southern Sutter County are in nonattainment status for the federal 8-hour ozone standard. All other counties are in attainment or unclassified status for the federal ozone standards.

All of the seven counties in the NSVAB are in nonattainment status for state standards for PM_{10}. All counties in the NSVAB are in unclassified status for federal PM_{10} standards. All counties also

are in unclassified status for state $PM_{2.5}$ standards except for Butte County, which is in nonattainment status. The entire NSVAB is in attainment or unclassified status for all other federal and state criteria pollutants. Because the timing of attainment status for the NSVAB is unknown, the cumulative setting for air quality assumes nonattainment status of ozone and PM_{10}.

The air districts in the NSVAB have adopted the 2006 Air Quality Attainment Plan. This plan was developed for the purpose of achieving and maintaining healthful air quality throughout the air basin. Like the previous attainment plans, the 2006 plan focused on the adoption and implementation of control measures for stationary sources, area-wide sources, and indirect sources, and addressed public education and information programs. The 2006 plan also addressed the effect that pollutant transport has on the NSVAB's ability to meet and attain the state standards.

Ozone trends are variable and unique for each district within the NSVAB. During the past three-year period, Anderson-Shasta County, Sutter Buttes-Sutter County, and Paradise-Butte County monitors experienced the highest number of ozone violations in the basin. Ozone concentrations in the NSVAB have remained relatively constant over the past three years, while population and vehicle miles traveled increased during the same period. Ozone concentrations increased appreciably in Anderson-Shasta County, largely due to unfavorable meteorological conditions (NSVAB Air Quality Districts, 2006).

Cumulative Impacts and Mitigation Measures

Regional Air Quality Impacts

Impact 4.3.6 Implementation of the proposed General Plan along with potential development of the Planning Area would exacerbate existing regional levels of ozone and particulate matter. The proposed General Plan's contribution to these conditions is considered **cumulatively considerable**.

Over the life of the proposed General Plan, some of the policies may result in substantial new development and increased population that would in turn adversely impact regional air quality. Buildout of the proposed General Plan would allow for the potential construction of approximately 4,305 dwelling units and 319 acres of commercial, industrial, and office uses over the existing 2003 General Plan buildout conditions. The growth in population and business activity, along with the corresponding increase in vehicle usage, when considered with growth proposed under the proposed General Plan, would contribute to cumulative regional air quality impacts. It also could potentially delay attainment of standards for which counties in the NSVAB currently are in nonattainment status, primarily ozone and PM_{10}.

Air pollutant transport from the Broader Sacramento Area (BSA) has an effect in the NSVAB by adding to the ozone problem within the NSVAB. Ozone precursors are emitted as part of the exhaust of internal combustion engines in the BSA and are transported northward via the prevailing winds. However, Orland cannot control the growth or emissions from neighboring jurisdictions. Therefore, the emissions from the BSA will continue to impact the NSVAB for the foreseeable future.

Mitigation Measures

Implementation of the proposed General Plan policies, programs, and mitigation measures identified under **Impact 4.3.1** through **Impact 4.3.5** would assist in reducing the proposed General Plan's contribution to cumulative regional and local air quality impacts; however, this

contribution is still considered **cumulatively considerable** and thus a **significant and unavoidable** impact. No feasible mitigation is available to mitigate this impact.

GREENHOUSE GASES AND CLIMATE CHANGE

Cumulative Setting

Global Climate Change

The California Environmental Quality Act (CEQA) requires that lead agencies consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. Emissions of greenhouse gases (GHGs) have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. In turn, global climate change has the potential to cause sea level rise, which can inundate low-lying areas; to affect rain and snow fall, leading to changes in water supply; to affect habitat, leading to adverse affects on biological resources, etc.

As noted previously, cumulative impacts are the collective impacts of one or more past, present, and future projects, that, when combined, result in adverse changes to the environment. When the adverse change is substantial, the cumulative impact is considered significant. The cumulative project list for this issue (global climate) comprises anthropogenic (i.e., man-made) GHG emission sources across the entire globe. No project alone would cause any noticeable incremental change to the global climate. However, legislation and executive orders on the subject of climate change in California have established a statewide context for GHG emissions, and an enforceable statewide cap on GHG emissions. Given the nature of environmental consequences from GHGs and global climate change, CEQA requires the evaluation of the cumulative impacts of GHGs. Even relatively small (on a global basis) additions need to be considered, and small contributions to this cumulative impact (from which significant effects are occurring and are expected to worsen over time) may be potentially considerable (and therefore, significant). Thus, the City of Orland has concluded that GHG emissions require consideration under CEQA.

Existing Climate Setting

To fully understand global climate change it is important to recognize the naturally occurring "greenhouse effect" and to define the greenhouse gases that contribute to this phenomenon. The temperature on Earth is regulated by this greenhouse effect, which is so named because the Earth's atmosphere acts like a greenhouse, warming the planet in much the same way that an ordinary greenhouse warms the air inside its glass walls. Like glass, the gases in the atmosphere let in light yet prevent heat from escaping.

GHG are naturally occurring gases such as water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) that absorb heat radiated from the Earth's surface. Greenhouse gases – carbon dioxide, methane, nitrous oxide, and others – are transparent to certain wavelengths of the sun's radiant energy, allowing them to penetrate deep into the atmosphere or all the way to the Earth's surface. Clouds, ice caps, and particles in the air reflect about 30 percent of this radiation, but oceans and land masses absorb the rest (70 percent of the radiation received from the sun) before releasing it back toward space as infrared radiation. GHG and clouds effectively prevent some of the infrared radiation from escaping; they trap the heat near Earth's surface where it warms the lower atmosphere. If this natural barrier of atmospheric gases were not present, the heat would escape into space, and Earth's average global temperatures could be as much as 61 degrees Fahrenheit cooler (NASA, 2007).

In addition to natural sources, human activities are exerting a major and growing influence on climate by changing the composition of the atmosphere and by modifying the land surface. Particularly, the increased consumption of fossil fuels (natural gas, coal, gasoline, etc.) has substantially increased atmospheric levels of greenhouse gases. Measured atmospheric levels of certain GHGs such as carbon dioxide, methane, and nitrous oxide have risen substantially in recent decades (Miller, 2000). This increase in atmospheric levels of GHG unnaturally enhances the greenhouse effect by trapping more infrared radiation as it rebounds from the Earth's surface and thus trapping more heat near the Earth's surface. Prominent GHGs contributing to the greenhouse effect and climate change include carbon dioxide (CO_2), methane (CH_4), ozone, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). Emissions of these gases are attributable to human activities associated with the industrial/manufacturing, utilities, transportation, residential, and agricultural sectors (California Energy Commission, 2006a).

According to the U.S. Environmental Protection Agency (EPA), the Earth's average surface temperature has increased by about 1.2 to 1.4°F since 1900. The warmest global average temperatures on record have all occurred within the past 15 years, with the warmest two years being 1998 and 2005. Eleven of the last 13 years rank among the hottest years on record (since 1850, when reliable worldwide temperature measurements began) (IPCC, 2007). Most of the warming in recent decades is likely the result of human activities. Other aspects of the climate are also changing such as rainfall patterns, snow and ice cover, and sea level.

Global Implications

Recognizing the problem of global climate change, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the Intergovernmental Panel on Climate Change (IPCC) in 1988. It is open to all members of the United Nations and WMO. The role of the IPCC is to assess on a comprehensive, objective, open, and transparent basis the scientific, technical, and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation. According to climate models, the IPCC projects that the Earth's average surface temperature should rise 1.8–6.3 °F before the year 2100. If the atmospheric concentration of CO2 doubles from its late 1700s level of 280 parts per million to 560 parts per million, the most likely rise in temperature would be about 3.6 °F. This may not seem like a significant increase, yet even at the lowest projected increase of 1.8 °F, the Earth would be warmer than it has been for 10,000 years (Miller, 2000).

The IPCC Fourth Assessment Report's Working Group I Summary for Policymakers (Report) synthesizes current scientific understanding of global climate change and projects future climate change using the most comprehensive set of well-established global climate models. The Report incorporates findings of the current effects of global climate change. These findings include:

- The intensity of tropical cyclones (hurricanes) in the North Atlantic has increased over the past 30 years, which correlates with increases in tropical sea surface temperatures.
- Droughts have become longer and more intense and have affected larger areas since the 1970s, especially in the tropics and subtropics.
- Since 1900 the Northern Hemisphere has lost 7 percent of the maximum area covered by seasonally frozen ground.
- Mountain glaciers and snow cover have declined worldwide.

- Satellite data since 1978 show that the extent of Arctic sea ice during the summer has shrunk by more than 20 percent.

- Since 1961, the world's oceans have been absorbing more than 80 percent of the heat added to the climate, causing ocean water to expand and contributing to rising sea levels. Between 1993 and 2003, ocean expansion was the largest contributor to sea level rise.

- Melting glaciers and losses from the Greenland and Antarctic ice sheets have also contributed to recent sea level rise.

An enhanced greenhouse effect will generate new patterns of microclimate and will have significant impacts on the economy, environment, and transportation infrastructure and operations due to increased temperatures, intensity of storms, sea level rise, and changes in precipitation. Impacts may include flooding of tunnels, coastal highways, runways, and railways, buckling of highways and railroad tracks, submersion of dock facilities, and a shift in agriculture to areas that are now cooler. Such prospects will have strategic security as well as transportation implications.

Climate change affects public health and the environment. Increased smog and emissions, respiratory disease, reduction in the state's water supply, extensive coastal damage, and changes in vegetation and crop patterns have been identified as effects of climate change. The impacts of climate change are broad-ranging and interact with other market failures and economic dynamics, giving rise to many complex policy problems. The findings are the latest in a string of reports warning that the rate of carbon dioxide accumulating in the atmosphere is increasing at an alarming pace.

California Implications

Climate change is a global problem, and GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Worldwide, California is the 12th to 16th largest emitter of CO_2 and is responsible for approximately 2 percent of the world's CO_2 emissions (CEC, 2006a, 2006b). In 2004, California produced 492 million gross metric tons of carbon dioxide-equivalent (CEC, 2006a). Based on the analysis and modeling provided below under the impact discussion, it is estimated that approximately 306,489 metric tons annually of carbon dioxide was produced in the City in 2008 (see **Table 5.0-3**). Approximately 61 percent of these emissions are associated with mobile emissions.

Increased ocean temperature could result in increased moisture flux into the state; however, since this would likely increasingly come in the form of rain rather than snow in the high elevations, increased precipitation could lead to increased potential and severity of flood events, placing more pressure on California's flood control system. Sea level has risen approximately 7 inches during the last century and, according to the CEC report, it is predicted to rise an additional 22–35 inches by 2100, depending on the future GHG emissions levels (CEC, 2006c). If this occurs, resultant effects could include increased coastal flooding, saltwater intrusion, and disruption of wetlands (CEC, 2006c). As the existing climate throughout California changes over time, mass migration of species, or worse, failure of species to migrate in time to adapt to the perturbations in climate, could also result.

According to the California Environmental Protection Agency, the climate changes for global warming could affect agriculture, the fishing industry, California's coastline, forests, and ecosystems, increase air pollution, and energy production (CalEPA, 2007a).

Agriculture

Potential impacts, such as reduced water supply, more severe droughts, more winter floods, and drier growing seasons will affect California's agriculture. Many farms, especially in the fruit and nut business, require long-term investments, making fast adaptation difficult, and could thus experience serious losses if decisions continue to be made with no regard to expected climate changes.

Fishing

Studies found that as a result of changes in ocean conditions, the distribution and abundance of major fish stocks will change substantially. Impacts to fisheries related to El Niño/Southern Oscillation illustrate how climate directly impacts marine fisheries on short-term scales. Higher sea surface temperatures in 1997–1998 during the El Niño had a great impact on market squid, California's largest fishery by volume. The California Regional Assessment reports that landings fell to less than 1,000 metric tons in that season, down from 110,000 tons in the 1996–1997 season. Other unusual events also occurred such as poor salmon returns, a series of plankton blooms, and seabird die-offs.

Coastline

With climate changes, recreational facilities and developed coastlines will also be more vulnerable to hurricanes, storm surges, and flooding. Increasing population growth in coastal areas is a reason for further concern, since these areas could be more vulnerable to climate change impacts. Impacts of expected sea level rise and increased storm surges are numerous. Beachfront homes and harbors as well as wetlands may flood. Sewage systems may be overwhelmed by storm runoff and high tides. Jetties and seawalls may have to be raised and strengthened to protect harbors which are used for shipping, recreation, and tourism.

Forests

The California Regional Assessment notes an increase in the number and extent of areas burned by wildfires in recent years, and modeling results under changing climate conditions suggest that fires may be hotter, move faster, and be more difficult to contain under future climate conditions. The factors which contribute to the risk of catastrophic fires (fuel loads, high temperatures, dry conditions, and wind) are typically present already in summer and fall seasons in California, but can exist at other times of the year, especially in drought conditions. Public safety is an issue as more home and tourism developments on coastal hills and mountains, and the foothills and higher elevations in the Sierra Nevada are highly susceptible to catastrophic wildfires.

Ecosystems

The current distribution, abundance, and vitality of species and habitats are strongly dependent on climatic (and microclimatic) conditions. Climate change is expected to result in warmer temperatures year-round, accompanied by substantially wetter winters. Rising sea level will significantly affect coastal wetlands because they are mostly within a few feet of sea level. As the sea rises, these wetlands will move inland. The overall acreage of wetlands will be reduced due to constraints by existing urban development and steeper slopes immediately inland of existing wetlands. Tidal rivers, estuaries, and relatively flat shoreline habitats will be more subject to damage by flooding and erosion. More severe storm surges from the ocean, due to higher sea levels, combined with higher river runoff could significantly increase flood levels by more

than the rise in sea level alone. Erosion of beaches would decrease habitat for beach-dependent species, such as seals, shorebirds, and endangered species (for example, snowy plover and least tern).

The timing and amounts of water released from reservoirs and diverted from streams are constrained by their effects on various native fish, especially those that are listed under the federal and state endangered species acts as threatened or endangered. Several potential hydrological changes associated with global climate change could influence the ecology of aquatic life in California and have several negative effects on cold-water fish (Department of Water Resources [hereafter "DWR"], 2008). For example, if climate change raises air temperature by just a few degrees Celsius, this change could be enough to raise the water temperatures above the tolerance of salmon and trout in many streams, favoring instead non-native fishes such as sunfish and carp (DWR, 2008). Unsuitable summer temperatures would be particularly problematic for many of the threatened and endangered fish that spend summers in cold-water streams, either as adults, juveniles, or both (DWR, 2008). In short, climate change could significantly affect threatened and endangered fish in California. It could also cause non-threatened and non-endangered fish to reach the point where they become designated as such (DWR, 2008).

Changes in temperature and precipitation patterns would also shift California's current climate zones, and thus habitats associated with these zones, northward by approximately 100–400 miles, as well as upwards in elevation by 500–1,500 feet. Global climate change would alter the composition, structure, and arrangement of the vegetation cover of the state (forest and wildland). Species distribution would move geographically as the climate changes, with forest stands, woodlands, and grassland species predicted to move northward and higher in elevation. The entire vegetative community may be affected if non-native invasive species occupy sites and replace native plants. Outbreaks of insects and diseases could compromise forest health and the capability of the forest stands to reproduce and to store carbon on a landscape basis. Forest fires are likely to become more frequent and severe if soils become drier. Changes in pest populations could further increase the stress on forests.

Air Quality

Projected climate changes will impact the quality of California's air, public health, and environment. Higher temperatures increase the formation of ground-level ozone and particulate matter, making it more difficult to meet the health-base air quality standards for these pollutants. Ground-level ozone has been shown to aggravate existing respiratory illnesses such as asthma, reduce lung function, and induce respiratory inflammation. Ambient ozone also reduces agricultural crop yields and impairs ecosystem health.

The particulate matter of most concern – PM_{10} – has a diameter smaller than 10 micrometers and can easily pass into the lungs, contributing to the development of lung tissue damage. PM_{10} has been implicated in exacerbation of cardiovascular disease, asthma, and other respiratory diseases and associated with increased mortality. Air pollution is also made worse by increases in natural hydrocarbon emissions and evaporative emissions of fuels and solvents which lead to higher levels of ozone and PM_{10} during hot weather. Warmer temperatures that cause increased use of air conditioners can cause increased air pollutants from power plants and from vehicle operation. In addition, warming, drying, and increased winds could mean hotter, harder-to-control wildfires. These wildfires could result in increased levels of fine particulate matter that could also exceed state and federal standards and harm public health.

Electricity Generation

California's electricity generation is currently relatively efficient when it comes to emissions of greenhouse gases. The national average for the electricity generation share of total greenhouse gas emissions is approximately 40 percent, while California electricity accounts for only 16 percent of statewide emissions. This is in part due to California's significant amount of imported electricity, mild climate, and lack of energy-intensive industry. Over the past two decades, California has developed one of the largest and most diverse renewable electricity generation industries in the world. However, changes in climate of the magnitude predicted by the Intergovernmental Panel of Climate Change would substantially affect electricity generation throughout California and the entire western states grid, particularly for hydroelectric facilities.

Less snowpack would result in lower levels of hydro-generation in the summer and fall seasons due to reduced runoff in those seasons. Additional hydropower may be available during the winter and the spring. However, on balance hydropower is more useful and valuable within the grid mix of generation sources when it is available throughout the peak summer and fall seasons. Flooding could also impact pipelines, wells, and related petroleum extraction equipment. Warmer weather would result in an increased demand for electricity for cooling appliances in homes and businesses.

Water Supply

While most climate model simulations project relatively moderate changes in precipitation over this century, rising global temperatures are expected to result in reductions in snowpack for the Sierra Nevada Mountains (i.e., precipitation changing in the form of rain from snow). By the 2035 to 2064 period, the Sierra Nevada snowpack could decrease from 12 percent to 40 percent as compared to historic levels (depending on the climate scenario) (CalEPA, 2007). The Sierra Nevada Mountains snowpack currently acts as a natural water storage (equal to approximately half of the storage capacity of California's major human-made reservoirs) by holding the winter precipitation and releasing it during the spring and early summer months as the snow melts. The reduction of this natural water storage during the winter could mean water shortages in the future and would require the alteration of the management of existing reservoirs (while not losing flood control capacity or hydropower generation capacity) and/or the construction of additional human-made reservoirs to compensate for this storage loss.

Potential impacts of climate change on water supply and availability could directly and indirectly affect a wide range of institutional, economic, and societal factors. Much uncertainty remains, however, with respect to the overall impact of global climate change on future water supplies. For example, models that predict drier conditions (i.e., parallel climate model [PCM]) suggest decreased reservoir inflows and storage and decreased river flows, relative to current conditions. By comparison, models that predict wetter conditions (i.e., HadCM2) project increased reservoir inflows and storage, and increased river flows. Both projections are equally probable based on which model is chosen for the analyses. Much uncertainty also exists with respect to how climate change will affect future demand of water supply (DWR, 2008). Still, changes in water supply are expected to occur and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows.

Minimal research has been conducted on the effects of climate change on specific groundwater basins, groundwater quality, or groundwater recharge characteristics. Changes in rainfall and changes in the timing of the groundwater recharge season would result in changes in recharge. Warmer temperatures could lead to higher evaporation as well as prolonged

drought periods that would reduce the amount of water entering the ground that could further limit deficient water supply conditions. However, warmer and wetter winters could increase the amount of runoff available for groundwater recharge. Additional winter runoff, however, could be occurring at a time when groundwater basins are being recharged at their maximum capacity. However, the extent to which climate will change and the impact of that change on groundwater are both unknown at this time.

Increased Flooding

Currently, there is no accurate information to accurately assess the impact of climate change for flood frequency or severity, because of the absence of detailed regional precipitation information from climate models and because water-management choices can substantially influence overall flood risk. However, increased amounts of winter runoff could be accompanied by increases in flood event severity and warrant additional dedication of wet season storage space for flood control as opposed to water supply storage. This need to manage water storage facilities to handle increased runoff could in turn lead to water shortages during high water demand. It is recognized that these impacts would result in increased challenges for reservoir management and balancing the competing concerns of flood protection and water supply.

Sudden Climate Change

Most global climate models project that anthropogenic climate change will be a continuous and fairly gradual process through the end of this century (DWR, 2008). California is expected to be able to adapt to the water supply challenges posed by climate change, even at some of the warmer and dryer projections for change. Sudden and unexpected changes in climate, however, could leave water managers unprepared and could, in extreme situations, have significant implications for California and its water supplies. For example, there is speculation that some of the recent droughts that occurred in California and the western United States could have been due, at least in part, to oscillating oceanic conditions resulting from climatic changes. The exact causes of these events are, however, unknown, and evidence suggests such events have occurred during at least the past 2,000 years (DWR, 2008).

CLIMATE CHANGE REGULATORY FRAMEWORK

Federal

Greenhouse Gases

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the Federal Clean Air Act (CAA). Previous to 2007, the EPA did not have regulations addressing GHGs. The U.S. Supreme Court ruled on April 2, 2007 that CO_2 is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. However, there are no federal regulations or policies regarding GHG emissions applicable at the time of writing.

State

Assembly Bill 1493

Assembly Bill (AB) 1493 required that the California Air Resources Board (ARB) develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of

greenhouse gases emitted by passenger vehicles and light-duty truck and other vehicles determined by the ARB to be vehicles whose primary use is noncommercial personal transportation in the state."

Assembly Bill 32, the California Global Warming Solutions Act of 2006

AB 32 requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). The reduction to 1990 levels will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Climate Change Proposed Scoping Plan

In October of 2008, ARB published its *Climate Change Proposed Scoping Plan* (*Proposed Scoping Plan*), which is the State's plan to achieve GHG reductions in California required by AB 32 (ARB, 2008). The *Proposed Scoping Plan* contains the main strategies California will implement to achieve reduction of 169 million metric tons (MMT) of CO_2e, or approximately 30 percent from the state's projected 2020 emission level of 596 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO_2e, or almost 10 percent, from 2002-2004 average emissions). The *Proposed Scoping Plan* also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations are from improving emission standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e), implementation of the Low-Carbon Fuel Standard (15.0 MMT CO_2e), energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e), and a renewable portfolio standard for electricity production (21.3 MMT CO_2e). ARB has not yet determined what amount of GHG reductions it recommends from local government operations; however, the *Proposed Scoping Plan* does state that land use planning and urban growth decisions will play an important role in the State's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. (Meanwhile, ARB is also developing an additional protocol for community emissions.) ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The *Proposed Scoping Plan* states that the ultimate GHG reduction assignment to local government operations is to be determined (ARB, 2008). With regard to land use planning, the *Proposed Scoping Plan* expects approximately 5.0 MMT CO_2e will be achieved associated with implementation of SB 375, which is discussed further below. The *Proposed Scoping Plan* was approved by ARB on December 11, 2008.

Senate Bill 1368

Senate Bill (SB) 1368 is the companion bill of AB 32. SB 1368 required the California Public Utilities Commission (CPUC) to establish a greenhouse gas emission performance standard for baseload generation from investor owned utilities by February 1, 2007. The California Energy Commission (CEC) had to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the greenhouse gas emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

California Climate Action Registry

The California Climate Action Registry (CCAR) was established in 2000 by Senate Bill 1771 and modified in 2001 by Senate Bill 527 as a nonprofit voluntary registry for GHG emissions. The purpose of CCAR is to help companies and organizations with operations in the state to establish GHG emissions baselines against which any future GHG emissions reduction requirements may be applied. CCAR has developed a general protocol and additional industry-specific protocols that provide guidance on how to inventory GHG emissions for participation in the registry.

Senate Bill 97

SB 97, signed August 2007, acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. (Pub. Resources Code, Sections 21083.05 and 21097). This bill directs the State Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA by July 1, 2009. The Resources Agency is required to certify and adopt those guidelines by January 1, 2010. This bill also removes, both retroactively and prospectively, as legitimate litigation causes of action any claim of inadequate CEQA analysis of effects of GHG emissions associated with environmental review for projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1B or 1E). This provision will be repealed by operation of law on January 1, 2010, at which time such projects, if any remain unapproved, will no longer enjoy the protection against litigation claims based on failure to adequately address climate change issues.

Senate Bill 1078

SB 1078 addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20 percent of their supply from renewable sources by 2017. SB 1078 changed the target date of this bill's implementation to 2010. This Senate bill would affect statewide GHG emissions associated with electricity generation.

Senate Bill 375

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and

2035. These reduction targets will be updated every 8 years, but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

This bill also extends the minimum time period for the Regional Housing Needs Allocation (RNHA) cycle from 5 years to 8 years for local governments located within an MPO that meets certain requirements. City or County land use policies (including General Plans) are not required to be consistent with the RTP (and associated SCS or APS). However, new provisions of CEQA would incentivize qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

Executive Order S-3-05

Executive Order S-3-05 proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of the CalEPA created a Climate Act Team (CAT) made up of members from various state agencies and commissions. CAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

Executive Order S-13-08: The Climate Adaptation and Sea Level Rise Planning Directive[1]

On November 14, 2008, Governor Arnold Schwarzenegger issued Executive Order (EO) S-13-08 in order to reduce and assess California vulnerability to climate change and sea level rise. The EO initiated four major actions:

1) Initiate California's first statewide climate change adaptation strategy that will assess the state's expected climate change impacts, identify where California is most vulnerable and recommend climate adaptation policies by early 2009;

2) Request the National Academy of Science establish an expert panel to report on sea level rise impacts in California to inform state planning and development efforts;

3) Issue interim guidance to state agencies for how to plan for sea level rise in designated coastal and floodplain areas for new projects;

[1] California Climate Change Portal, "California Climate Adaptation Strategy", http://www.climatechange.ca.gov/adaptation/index.html

4) Initiate a report on critical existing and planned infrastructure projects vulnerable to sea level rise; and

5) The EO will provide consistency and clarify to state agencies on how to address sea level rise in current planning efforts.

GREENHOUSE GAS AND CLIMATE CHANGE IMPACTS AND MITIGATION MEASURES

Thresholds of Significance

Under CEQA, an environmental impact report must identify and focus on the significant environmental effects of a project. Significant effect on the environment means a substantial, or potentially substantial, adverse change in the environment (Pub. Resources Code, § 21068). CEQA further states that the CEQA Guidelines shall specify certain criteria to be used in determining whether projects would have a significant effect on the environment. However, as of the writing of this EIR, the agencies with jurisdiction over air quality regulation and GHG emissions such as the ARB and the Glenn County Air Pollution Control District (GCAPCD) have not established regulations, guidance, methodologies, significance thresholds, standards or analysis protocols for the assessment of GHG emissions and climate change. A standardized, statewide methodology to establish an appropriate baseline, such as a project-level (regional GHG emissions) inventory, to evaluate the significance of GHG emission changes has not yet been established. This places the burden for establishing a methodology, and determining significance standards, on local lead agencies, such as the City of Orland. Given the global nature of this impact, the City believes that local lead agencies are not the most appropriate source for establishing methods and significance standards for assessing impacts on global climate change.

Given the challenges associated with determining project-specific significance criteria for this global-scale issue, and the fact that regulatory agencies best suited for developing the methodology have not yet established any criteria, the City has decided not to use a quantified significance threshold for use in this EIR.

To meet GHG emission targets of AB 32, California would need to generate in the future less GHG emissions than current levels. It is recognized, however, that for most projects there is no simple metric available to determine if a single project would substantially increase or decrease overall GHG emission levels or conflict with the goals of AB 32. Moreover, emitting CO_2 into the atmosphere is not itself an adverse environmental effect. It is the increased concentration of CO_2 in the atmosphere resulting in global climate change and the associated consequences of climate change that results in adverse environmental effects (e.g., sea level rise, loss of snowpack, severe weather events). Although it is possible to generally estimate a project's incremental contribution of CO_2 into the atmosphere, it is typically not possible to determine whether or how an individual project's relatively small incremental contribution might translate into physical effects on the environment. Given the complex interactions between various global and regional-scale physical, chemical, atmospheric, terrestrial, and aquatic systems that result in the physical expressions of global climate change, it is impossible to discern whether the presence or absence of CO_2 emitted by the project would result in any altered conditions.

However, the State of California has established GHG reduction targets and has determined that GHG emissions as they relate to global climate change are a source of adverse environmental impacts in California that should be addressed under CEQA. Although AB 32 did not amend CEQA, it identifies the myriad environmental problems in California caused by global warming (Health and Safety Code, Section 38501[a]). SB 97, however, did amend CEQA by

directing OPR to prepare revisions to the State CEQA Guidelines addressing the mitigation of GHGs or their consequences. As an interim step toward development of required guidelines, in June of 2008, OPR published a technical advisory, entitled "CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review." OPR recommends that the lead agencies under CEQA make a good-faith effort, based on available information, to estimate the quantity of GHG emissions that would be generated by a proposed project, including the emissions associated with vehicular traffic, energy consumption, water usage, and construction activities, to determine whether the impacts have the potential to result in a project or cumulative impact and to mitigate the impacts where feasible.

In that document, OPR acknowledged that "perhaps the most difficult part of the climate change analysis will be the determination of significance," and noted that "OPR has asked ARB technical staff to recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state." ARB has not yet completed this task at the time of writing.

AB 32 requires ARB, the State agency charged with regulating statewide air quality, to adopt rules and regulations that by 2020 would achieve a reduction in greenhouse gas emissions equivalent to the statewide inventory levels of 1990. On or before June 30, 2007, ARB was required to publish a list of discrete GHG emission reduction measures that can be implemented. On April 20, 2007, ARB published their proposed early actions, which include discrete early action measures, additional greenhouse gas reduction strategies, and criteria and toxic control measures.

The California Environmental Protection Agency (CalEPA) Climate Action Team (CAT) developed a report that "proposes a path to achieve the Governor's targets [established in Executive Order S-3-05] that will build on voluntary actions of California businesses, local government and community actions, and State incentive and regulatory programs" (CAT, 2006) needed to reduce activities that contribute to global climate change. The report indicates that the strategies will reduce California's emissions to the levels proposed in Executive Order S-3-05.

Given this information, AB 32, Executive Order S-3-05, and the CAT report all indicate that development projects need to reduce GHG emissions to the target levels by adopting the reduction measures in order to find that the project's incremental contribution to global climate change impacts are not significant. If the project is not consistent with those strategies that a Lead Agency deems feasible, then a project could potentially be deemed to have a significant impact on global climate change.

For the purposes of this EIR, the City has decided to quantify total GHG emissions from the proposed General Plan, compare the proposed General Plan to the currently available set of strategies from the CAT, and determine whether implementation of the proposed General Plan would be consistent with 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 addition to consistency with state efforts to reduce GHG emissions, this section evaluates whether the subsequent development under the proposed General Plan would be exposed to significant environmental impacts associated with the effects of global climate change.

METHODOLOGY

The global greenhouse gas emission analysis for this EIR is also based on land use designations identified in the Land Use Element of the proposed General Plan and the projected traffic and

residential, commercial, office, and industrial uses. Increases in greenhouse gas emissions were calculated using a variety of programs including the EPA *Personal Greenhouse Gas Calculator* for emissions from residential buildings, the EPA *Power Profiler* for emissions resulting from non-residential buildings, and URBEMIS (v9.2.4) for greenhouse gas emissions resulting from mobile emission sources. The EPA *Personal Greenhouse Gas Calculator,* available at http://www.epa.gov/climatechange/emissions/ind_calculator.html, allows users to input the average number of persons per home, which varies from community to community. The average number of persons per household in the City of Orland (2.9)[2] was based on California Department of Finance statistics for the 2008 City population. The EPA *Power Profiler* for commercial uses, which is available at http://www.epa.gov/cleanenergy/powerprofiler.htm, can be adjusted to address the average monthly kilowatt hours demanded by a specific region. As shown below, an average monthly kilowatt hour demand for commercial accounts within the Pacific Gas & Electric Utility District service area, which includes the City, was obtained and used to quantify emissions from potential non-residential buildings resulting from the project providing a high level of regional specificity when quantifying non-residential building greenhouse gas emissions.

Cumulative Climate Change Impacts and Mitigation Measures

Consistency with Greenhouse Gas Reduction Measures

Impact 5.0.1 Subsequent land use activities associated with implementation of the proposed General Plan, in combination with existing, approved, proposed, and reasonably foreseeable development in the Planning Area, would result in the cumulative increase of greenhouse gases including CO_2 emitted into the atmosphere. Implementation of the proposed General Plan would implement a number of policies that would complement and be consistent with the early emission reduction strategies contained in the California Climate Action Team's (CAT) Report to the Governor and Executive Order S-3-05. This impact is considered to be **potentially cumulatively considerable.**

The amount of GHGs emissions produced from residential and non-residential buildings is related to the amount of energy that is used to operate the building such as electricity, natural gas, and propane. GHG emissions from the industrial sector are produced from many industrial activities. For example, CO_2 is produced from fossil fuels, with the major contributions from oil and natural gas extraction, crude oil refining, food processing, stone, clay, glass, and cement manufacturing, chemical manufacturing, and cement production. Other industrial activities produce methane emissions, with the major contributions from petroleum and natural gas supply systems and wastewater treatment, while other industrial activities produce nitrous oxide emissions with the major contributions from nitric acid production and municipal wastewater treatment.

The following is quantification of major greenhouse gas emissions anticipated from growth under the proposed General Plan. However, it should be noted that there are other sources of greenhouse emissions that are acknowledged, but not quantified in this document.

[2] Proposed General Plan population estimates are based on an assumption of 3.0 persons per single-family unit, 2.5 persons per medium density multi-family unit, and 2.0 persons per high density multi-family unit. However, due to the complex nature of greenhouse gas quantification, the Department of Finance estimated average of 2.9 persons per all Orland households, regardless of housing type, was used in order to avoid multiple inputs.

Other non-quantified GHG sources (at this time) include the following:

1) Industrial combustion and industrial processes;
2) Agricultural and other non-road equipment;
3) Land use changes (urban conversions);
4) Air travel and City operations;
5) Water supply (related to pumping energy consumption);
6) Emissions from production of materials outside the City that are used in the City;
7) Wastewater and solid waste storage and disposal; and
8) Construction equipment.

Quantification of these sources is subject to substantial uncertainty at this time due to the lack of detailed information on future industrial processes, the extent of equipment activity for future agricultural and forestry activity, the change in carbon sequestration from conversion of natural lands to other land covers, how to account for air travel without double-counting, water supply pumping electricity demand, net methane emissions from landfills (taking into account landfill specific data on methane collection and recovery systems), and the actual character of construction activity over the next 20 years.

Residential Buildings

In order to anticipate the number of housing units and population in Orland in the year 2028, three growth rates were used to develop estimates. The "High" growth rate is a 2.6 percent average annual growth rate, which was the growth rate of the City's population from 1970 to 2000. The "Medium" rate is a 2.2 percent average growth rate, which was the growth rate of the City's population from 1990 to 2000, the most recent years. The "Low" growth rate is a 1.8 percent average annual growth rate. This was an arbitrarily selected rate, which was obtained by subtracting the Medium rate from the High rate, then subtracting the difference from the Medium rate (see Section 4.10 Population and Housing for projected growth estimates).

The 2.6 percent "High" growth rate is used for the purpose of this greenhouse gas emission analysis, as it represents the largest level of growth anticipated for the City during the proposed General Plan planning period. Under the 2.6 percent 2028 growth scenario, the implementation of the proposed General Plan will result in an estimated total CO_2 emission for residential buildings of 130,613,912 pounds per year (lbs/yr). This is an increase of 52,740,560 lbs/yr over existing conditions.

The method used to determine CO_2 emissions from buildings is based on the EPA Personal GHG Calculator which is available at http://epa.gov/climatechange/emissions/ind_calculator.html. The following attributes were inputted into the GHG calculator to determine the amount of CO_2 emissions of single home in the City of Orland:

- All residential building types were treated the same.
- The CO_2 emissions for residential buildings were produced solely by the EPA Personal Greenhouse Gas (GHG) Calculator Annual Household Estimator and include CO_2-equivalent amounts as well as other sources of emissions other than electricity use.
- Assumptions used in EPA Personal GHG Calculator include:
  - 0 miles vehicle per week traveled (vehicle travel will be analyzed separately); and

– No recycling.

This emission was then multiplied by the existing and projected number of homes in the City under the proposed project's 2028 "High" growth rate scenario as well as project buildout. **Table 5.0-1** illustrates the CO_2 emissions from residential buildings under existing, 2028 conditions, as well as buildout, which is projected to occur in 2096.

TABLE 5.0-1
RESIDENTIAL BUILDINGS: EXISTING AND GENERAL PLAN 2028 AND BUILDOUT CO_2 EMISSIONS

GHG Calculator Question	Data	Pounds of CO_2 Per Year Per Dwelling Unit (lbs/yr/du)
Average number of persons per home	2.9*	-
Home heat source	Electric	-
Average monthly gas bill	$105	10,988 lbs/yr/du
Average monthly electric bill	$100	16,440 lbs/yr/du
GHG emissions from waste (for 2.9 persons per home)	-	2,036 lbs/yr/du
Total CO_2 Emissions		**29,464 lbs/yr/du**
Condition	**Housing Units**	**Total CO_2 Emissions**
Existing	2,643	77,873,352 lbs/yr
2028 ("High" growth rate)	4,433	130,613,912 lbs/yr
Buildout (projected for the year 2096)	16,210	477,611,440 lbs/yr

Source: EPA Personal GHG Calculator; DOF, 2008
*Notes: *For the purposes of this greenhouse gas projection, average number of persons per home is based on the 2008 California Department of Finance Table E-5 Population and Housing Estimates.*

Non-Residential Buildings

The proposed General Plan identifies approximately 748 non-residential acres (32,582,880 square feet) under the 2.6 percent 2028 "High" growth rate scenario[3] (commercial, office, industrial, and public facility and church uses). The City of Orland Zoning Code identifies design requirements and building size restrictions for each land use allowed in the City. For instance, the development of buildings for uses such as banks, hardware stores, and flower shops are restricted to a maximum building coverage of 60 percent of the lot of which they are constructed. Accounting for these restrictions on allowable building space, the 2028 General Plan Update would allow for approximately 495 acres (21,562,200 square feet) of non-residential building space under the 2.6 percent 2028 "High" growth rate scenario.

The following parameters were used to calculate the amount of CO_2 emitted by the non-residential buildings in Orland:

- All non-residential building types were treated the same (i.e., same energy intensity, percentage from coal/natural gas, and emission factors).

[3] The 2.6 percent 2028 growth scenario assumes commercial and industrial uses will increase at the same rate as residential uses (2.6 percent per year).

- The CO_2 emissions for non-residential buildings are not CO_2-equivalent emissions but only CO_2 emissions.

- CO_2 emissions estimates for non-residential buildings are based solely on electricity use and no other energy source. These estimates are weighted according to coal and natural gas-based electricity generation in California.

- CO_2 emissions factors for non-residential uses are based the EPA Power Profiler for commercial uses available at http://www.epa.gov/cleanenergy/powerprofiler.htm

Table 5.0-2 illustrates the estimated CO_2 emissions for non-residential uses in the City under existing, 2028 conditions, and buildout conditions. This calculation does not include vehicle trips for non-residential uses. It is estimated that implementation of the proposed General Plan will result in the production of 247,907,513 lbs/year of CO_2 for non-residential uses at 2028. This is an increase of 65,497,806 lbs/year over existing conditions.

TABLE 5.0-2
NON-RESIDENTIAL ALLOWABLE BUILDING SPACE: EXISTING AND 2028 AND BUILDOUT CO_2 EMISSIONS

Condition	Area	CO_2 Emission[1]
Existing[2]	15,865,411 sq. ft.	182,409,707 lbs/yr
2028 ("High" growth rate)	21,562,200 sq. ft.	247,907,513 lbs/yr
Buildout (projected for the year 2096)	31,560,515 sq. ft.	362,861,339 lbs/yr

Source: EPA Power Profiler

Notes: 1 CO_2 emissions are passed on the EPA Power Profiler program. The program's output is based on a monthly 1 kWh average use.

2 The existing non-residential square footage is only an estimate and is based on the total amount of non-residential acreage in the City of Orland.

3 The 2028 "High" growth rate scenario non-residential square footage is a combination of existing and projected square footage.

Traffic

According to 2008 projections of the California Department of Finance, there are currently 2,643 residential units in the City of Orland (1,991 single-family dwellings, 384 condominiums/townhouses, 197 apartment units, and 71 mobile homes). According to URBEMIS 2007 (Version 9.2.4), the type of residential units existing under current conditions (single-family dwellings, condominiums/townhouses, apartment units, and mobile homes) would result in an average 9.57, 6.90, 6.90 and 5.98 daily vehicle trips per unit respectively. Based on these daily vehicle rip rates, total existing residential daily trips in the City equals 23,485 total trips daily [(1,991 single-family units x 9.57 average daily trips = 19,053) + (384 condominiums/townhouses x 6.90 average daily trips = 2,649) + (197 apartment units x 6.90 total trips daily = 1,359) + (71 mobile homes x 5.98 = 424) = 23,485 total trips daily from residential uses].

Accounting for design requirements and building size restrictions on allowable building space, the existing non-residential square footage of the City is approximately 15,865,411 (commercial, industrial, and public facility and church uses). According to URBEMIS 2007 (Version 9.2.4), the type of non-residential uses existing under current conditions (commercial, industrial, and public facility and church uses) would result in an average 45.04, 4.96, 14.49, 9.11 daily vehicle trips per

1,000 square feet respectively[4]. Based on these daily vehicle trip rates, total existing non-residential uses in the City equals 177,986 total trips daily. [(2,503 ksf/ commercial x 45.04 average daily trips = 112,735) + (11,974 ksf/ industrial x 4.96 average daily trips = 59,391) + (126 ksf/ public facilities (schools) x 14.49 average daily trips = 1,825) + (443 ksf/ church uses x 9.11 average daily trips = 4,035) = 177,986 total trips daily from non-residential uses][5].

The URBEMIS model conducted for the project provides data that can be used to estimate CO_2 emissions from project generated residential and non-residential vehicle trips. Implementation of the proposed General Plan would result in an additional 11,927 residential and 94,055 non-residential trips daily for a total of 307,453 residential and non-residential trips daily under 2028 conditions and the "High" growth rate scenario (23,485 trips daily from existing residential uses + 177,986 trips daily from existing non-residential uses + 11,927 trips daily from proposed residential uses + 94,055 trips daily from proposed non-residential uses = 307,453 total trips daily under 2028 conditions).

Assuming a trip rate of seven miles per trip,[6] the proposed project in 2028 would generate an average of 2,152,171 vehicle miles traveled (VMT) per day, or approximately 785 million VMT annually. Assuming an emissions factor for future CO_2 emissions from vehicles of approximately 0.807 pounds (366 grams) of CO_2 per mile (California Air Resources Board, 2002), approximately 633,932,365 lbs (316,966 tons) of CO_2 per year would be generated by all vehicle trips under 2028 conditions. **Table 5.0-3** shows potential residential and non-residential vehicle CO_2 emissions that would result with development under existing conditions, 2028 conditions, and General Plan buildout conditions.

TABLE 5.0-3
RESIDENTIAL AND NON-RESIDENTIAL VEHICLE: EXISTING AND 2028 ("HIGH" GROWTH RATE SCENARIO) CO_2 EMISSIONS

Source	Daily Vehicle Trips			Daily Vehicle Miles Traveled			Annual CO_2 Emission		
	Existing	2028	Buildout	Existing	2028	Buildout	Existing	2028	Buildout
Residential	23,485	35,412	121,250[1]	164,395	247,884	848,750	48,423,090 lbs/yr	73,015,330 lbs/yr	250,003,465
Non-Residential	177,986	272,041	580,713[2]	1,245,902	1,904,287	4,064,991	366,986,330 lbs/yr	560,917,035 lbs/yr	1,197,363,155
Total	201,471	307,453	701,963	1,410,297	2,152,171	4,913,741	415,409,785 lbs/yr	633,932,365 lbs/yr	1,447,366,620

[1] Daily vehicle trips for residential buildout are based on a combined average of all residential type average daily trips [single-family dwellings (9.57), condominiums/townhouses (6.90), apartment units (6.90), and mobile homes (5.98)].
[2] Daily vehicle trips for non-residential buildout are based on a combined average of all non-residential type average daily trips [commercial (45.04), industrial (4.96), public facility (14.49), and church uses (9.11)].
Source: Urbemis 2007 v. 9.2.4; ARB; 2008

[4] The commercial land use traffic Trip Generation Rate is based on the median for all commercial and retail categories identified in the Urbemis 2007 ver 9.2.4 model. The industrial land use Trip Generation Rate is based on the median for all industrial categories identified in the Urbemis 2007 ver 9.2.4 model. The school/daycare land uses Trip Generation Rate is based on the median for all school and daycare categories identified in the Urbemis 2007 ver 9.2.4 model.
[5] ksf = 1,000 square feet
[6] Default value used by *URBEMIS Version 9.2.4, Environmental Management Software* Air Quality monitoring software. Rimpo and Associates, 2007.

Note that although this future CO_2 emissions factor does assume certain reductions in vehicle emissions due to future vehicle models operating more efficiently, it does not take into account additional vehicle emission reductions that might take place in response to AB 1493 if mobile source emission reductions are ultimately implemented through this legislation.

Total General Plan 2028 CO_2 Emissions

Table 5.0-4 illustrates the total 2028 amount of CO_2 emissions as a result of implementation of the proposed General Plan "High" growth rate scenario. According to the methodologies listed previously for the identification of CO_2 emissions, implementation of the proposed General Plan will result in an increase in CO_2 emissions of 0.45 million metric tons (MMT) annually by 2028. In comparison, the amount of CO_2 emitted in California in 2004 was 334.9 MMT.

TABLE 5.0-4
2028 CO_2 EMISSIONS ("HIGH" GROWTH RATE SCENARIO)

Source	CO_2 Emission (lbs/yr)	Million Metric Tons (MMT)
Residential Buildings	130,613,912 lbs/yr	0.06 MMT
Non-Residential Buildings	247,907,513 lbs/yr	0.10 MMT
Vehicles	633,932,365 lbs/yr	0.28 MMT
Total	**1,012,455,790 lbs/yr**	**0.45 MMT**
California 2004 total CO_2 Emissions		334.9 MMT

Source: CEC 2006a Table 6

Total General Plan Buildout CO_2 Emissions

Table 5.0-5 illustrates the total Buildout amount of CO_2 emissions, which is projected to occur in 2096. Buildout of the General Plan Planning Area will result in an increase in CO_2 emissions of 1.02 million metric tons (MMT) annually by 2096. In comparison, the amount of CO_2 emitted in California in 2004 was 334.9 MMT.

TABLE 5.0-5
BUILDOUT CO_2 EMISSIONS

Source	CO_2 Emission (lbs/yr)	Million Metric Tons (MMT)
Residential Buildings	477,611,440 lbs/yr	0.2 MMT
Non-Residential Buildings	362,861,339 lbs/yr	0.16 MMT
Vehicles	1,447,366,620 lbs/yr	0.65 MMT
Total	2,257,839,399 lbs/yr	**1.02 MMT**
California 2004 total CO_2 Emissions		334.9 MMT

The analysis methodology used for the emissions estimate assumes that all emissions sources are new sources and that emissions from these sources are 100 percent additive to existing conditions. This is a standard approach taken for air quality analyses. In many cases, such an assumption is appropriate because it is impossible to determine whether emissions sources associated with a project move from outside the air basin and are in effect new emissions

sources, or whether they are sources that were already in the air basin and just shifted to a new location. However, because the effects of GHGs are global, a project that merely shifts the location of a GHG-emitting activity (e.g., where people live, where vehicles drive, or where companies conduct business) would result in no net change in global GHG emissions levels.

For example, if a substantial portion of California's population migrated from the South Coast Air Basin to the Northern Sacramento Valley Air Basin, this would likely result in decreased emissions in the South Coast Air Basin and increased emissions in the Northern Sacramento Valley Air Basin, but little change in overall global GHG emissions. However, if a person moves from one location where the land use pattern requires substantial vehicle use for day-to-day activities (commuting, shopping, etc.) to a new development that promotes shorter and fewer vehicle trips, more walking, and overall less energy usage, then it could be argued that the new development would result in a potential net reduction in global GHG emissions.

It is impossible to know at this time whether residents in the City of Orland will have longer or shorter commutes relative to their existing homes, whether they will walk, bike, and use public transportation more or less than under existing circumstances, and whether their overall driving habits will result in higher or lower VMT. Much of the vehicle-generated CO_2 emissions attributed to the project could simply be from vehicles currently emitting CO_2 at an existing location moving to the City and not from new vehicle emissions sources relative to global climate change. Additionally, the year 2028 will not occur for approximately 20 years and buildout conditions are not projected to occur until the year 2096 or 68 years after 2028. Future changes in building energy efficiency standards as well as higher production of non-CO_2-emitting energy sources (i.e., wind and solar power) would decrease the amount of CO_2 emissions from buildings than those calculated today. As a result, although it is possible to calculate the estimated contribution of building- and vehicle-generated CO_2 emissions from implementation of the proposed General Plan, the actual CO_2 contribution during the life of the General Plan would likely be much less than the 0.45 million metric tons of CO_2 per year calculated above. Likewise, the actual CO_2 contribution at buildout will likely be much less than the 1.02 million metric tons of CO_2 per year calculated above.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Open Space, Conservation, & Public Facilities: Policy 5.5A, Policy 5.5B, Policy 5.5C, Policy 5.5E, Policy 5.5F, Policy 5.5G, Policy 5.5H

Circulation: Policy 3.3C, Program 3.3.C.1, Program 3.6.A.1, Policy 3.6.B, Program 3.6.B.1, Policy 3.6.C, Policy 3.7.A, Policy 3.7.B, Policy 3.7.D. Policy 3.8.A, Policy 3.8.B, Program 3.8.B.1, Policy 3.8.C

Policy 5.5A mandates the City to comply with AB 32 and its governing regulations to the full extent of the City's ability while Policy 5.5.B would further implement any additional adopted State legislative or regulatory standards, policies and practices designed to reduce greenhouse gas emissions, as those measures are developed. Similarly, Policy 5.5.G ensures that the City will continue to monitor the efforts of the California Air Resources Board and other various organizations responsible for the preparation of GHG-reducing standards. Policy 5.5.C explores opportunities to train appropriate City staff on new technology and look for opportunities to improve energy efficiency in public facilities, and thus reduce greenhouse gas emissions. Policy 5.5.D further attempts to reduce greenhouse gas emissions by researching the adoption of sustainable design practices which encourage the use of alternative energy sources and minimize the use of fossil fuels. Policy 5.5.E ensures review of local subdivision, zoning, and building ordinances to identify whether impediments exist to the use of alternative energy

sources while Policy 5.5.H explores the use of alternative energy sources such as solar- and/or wind-powered technologies.

Circulation Element Policy 3.3.C and associated Program 3.3.C.1 ensure the installation of traffic control devices at intersections, as needed, in order to reduce traffic congestion at key intersections throughout the City. Such measures will reduce the greenhouse gas emissions resulting from congested intersections, lower average speeds, and decrease idling times. Program 3.6.A.1 provides for bus pull-outs and transit stops at locations determined by the City and transit agency to be appropriate while Policy 3.6.C ensures coordination with regional transit planners to determine the feasibility of developing and/or improving commuter bus service. Policy 3.6.B and associated Program 3.6.B.1 encourage the use of car-pooling, vanpooling and flexible employment hours for employees in the City. Improved bus service and expanded car-pooling and van-pooling options will lead to less dependence on the single occupant automobile driver within the City, thus reducing greenhouse gas emissions. Policies 3.7.A, 3.7.B, and 3.7.D, as well as Policy 3.8.A, Policy 3.8b, Program 3.8.B.1, and Policy 3.8.C strive to improve pedestrian and bicycle pathways by connecting major destinations in Orland which will also encourage alternative forms of transportation and reduce dependency on automobiles, thus reducing greenhouse gas emissions. Open Space Element Policy 5.5.F encourages the use of alternative forms of transportation within the community to reduce the emissions of greenhouse gases.

California Governor Arnold Schwarzenegger announced on June 1, 2005 through Executive Order S-3-05 (Climate Change) GHG emission reduction targets as follows: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels (CA 2005). Some literature equates these reductions to 11 percent by 2010 and 25 percent by 2020.

AB 32 requires that by January 1, 2008, the state board shall determine what the statewide GHG emissions level was in 1990, and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020. While the level of 1990 GHG emissions has not been approved at this time, other publications indicate that levels varied from 425 to 468 teragrams of carbon dioxide equivalent (Tg CO_2 Eq) (CEC 2006a). In 2004, the emissions were estimated at 492 Tg CO_2 Eq (CEC 2006a). Using the range of 1990 emissions, a reduction of between 5 and 13 percent would be needed to reduce 2004 levels to 1990 levels.

The CAT developed a report that "proposes a path to achieve the Governor's targets that will build on voluntary actions of California businesses, local government and community actions, and State incentive and regulatory programs" (CAT 2006). The report indicates that the strategies will reduce California's emissions to the levels proposed in Executive Order S-3-05.

The strategies that apply to the proposed General Plan are contained in **Table 5.0-6**. These strategies are broad in their scope and address a wide range of industries and GHG emission sources. Therefore, most of the strategies are not applicable to the proposed General Plan. Also, for those strategies that are applicable, specific regulations or detailed guidance regarding their implementation is typically not available. Thus, the proposed General Plan's compliance with these measures was evaluated by the City qualitatively with the understanding that exact compliance can only be determined once specifically applicable regulations are adopted. The analysis included in this table focuses on the ability of the proposed General Plan to substantially comply with the applicable strategies.

TABLE 5.0-6
PROPOSED GENERAL PLAN COMPLIANCE WITH
CAT GREENHOUSE GAS EMISSION REDUCTION STRATEGIES

Strategy and Description	Proposed General Plan Compliance
California Air Resources Board	
Vehicle Climate Change Standards AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the ARB in September 2004.	Not Applicable. This measure applies to passenger vehicles and light duty trucks. The City does not manufacture, sale or purchase these vehicles. Vehicles used onsite would be required to comply with applicable State and federal regulations, once implemented.
Other Light Duty Vehicle Technology New standards would be adopted to phase in beginning in the 2017 model year	Not Applicable. The City does not manufacturer, sale or purchase light duty vehicles. Light duty trucks that access the site would be required to be in compliance with applicable State and federal regulations.
Diesel Anti-Idling In July 2004, the ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Not Applicable. Businesses operators in the City would be subject to this requirement.
Hydrofluorocarbon Reduction (1) Ban retail sale of HFC in small cans. (2) Require that only low GWP refrigerants be used in new vehicular systems. (3) Adopt specifications for new commercial refrigeration. (4) Add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs. (5) Enforce federal ban on releasing HFCs.	Not applicable. Retail uses, businesses and City operations would be subject to this requirement.
Transportation Refrigeration Units (TRUs), Off-Road Electrification, Port Electrification Strategies to reduce emissions from TRUs, increase off-road electrification, and increase use of shore-side/port electrification.	Not applicable. Implementation of the General Plan does not involve transportation refrigeration units.
Manure Management Strategies to reduce volatile organic compounds from confined animal facilities.	Not Applicable. Applicable businesses operators in the City would be subject to this requirement.
Alternative Fuels: Biodiesel Blends ARB would develop regulations to require the use of 1 to 4% biodiesel displacement of California diesel fuel.	Not Applicable. The proposed General Plan does not specifically propose any fuel-dispensing facilities.
Alternative Fuels: Ethanol Increased use of ethanol fuel.	Not Applicable. The proposed General Plan does not specifically propose any fuel-dispensing facilities.
Heavy-Duty Vehicle Emission Reduction Measures Increased efficiency in the design of heavy-duty vehicles and an education program for the heavy-duty vehicle sector.	Not Applicable. Applicable businesses operators in the City would be subject to this requirement.

Strategy and Description	Proposed General Plan Compliance
Reduced Venting and Leaks in Oil and Gas Systems Rule considered for adoption by the Air Pollution Control Districts for improved management practices.	Not Applicable. The proposed General Plan does not specifically propose any fuel-dispensing or motor vehicle maintenance facilities.
Hydrogen Highway The California Hydrogen Highway Network (CA H2 Net) is a State initiative to promote the use of hydrogen as a means of diversifying the sources of transportation energy.	Not Applicable. The proposed General Plan does not involve highway related planning.
Achieve 50 Percent Statewide Recycling Goal Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy-intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Compliant. Glenn County, which includes the City, diverts more than 50% of the solid waste generated within the County from landfill disposal, consistent with the requirements of AB 939. The majority of this diversion takes place at the Glenn County Landfill in Artois which recovers recyclable materials such as glass, metals, paper, plastics, wood waste and other compostable materials. Solid waste generated from the proposed General Plan would be delivered to the Glenn County Landfill. Therefore the proposed General Plan would be consistent with this strategy.
Landfill Methane Capture Install direct gas use or electricity projects at landfills to capture and use emitted methane.	Not Applicable. The proposed General Plan does not involve or require improvements to any landfill.
Department of Water Resources	
Water Use Efficiency Approximately 19% of all electricity, 30% of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.	Compliant. Landscape plans are required by the City to be certified by the landscape architect as meeting the requirements of the Water Conservation in Landscaping Act (Government Code Section 65591, et. seq.).
Energy Commission (CEC)	
Building Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).	Compliant. Construction and operation of all of the proposed buildings in the City would be required to comply with the energy efficiency standards included in Title 24 of the California Code of Regulations. Title 24 identifies specific energy efficiency requirements for building construction and systems operations that are intended to ensure efficient energy usage over the long-term life of the building.
Appliance Energy Efficiency Standards in Place and in Progress Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and	Compliant. Construction and operation of all of the proposed buildings in the City would be required to comply with the energy efficiency standards included in Title 24 of the California Code of Regulations. Title 24 identifies

Strategy and Description	Proposed General Plan Compliance
equipment using energy that are sold or offered for sale in California).	specific energy efficiency requirements for building construction and systems operations that are intended to ensure efficient energy usage over the long-term life of the building.
Cement Manufacturing Cost-effective reductions to reduce energy consumption and to lower carbon dioxide emissions in the cement industry.	Not Applicable
Municipal Utility Strategies Includes energy efficiency programs, renewable portfolio standard, combined heat and power, and transitioning away from carbon-intensive generation.	Not Applicable
Alternative Fuels: Non-Petroleum Fuels Increasing the use of non-petroleum fuels in California's transportation sector, as recommended in the CEC's 2003 and 2005 Integrated Energy Policy Reports.	Not Applicable
Business Transportation and Housing	
Smart Land Use and Intelligent Transportation Systems (ITS) Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods, and services. Governor Schwarzenegger is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through State investments, incentives and technical assistance, land use, and technology strategies that provide for a prosperous economy, social equity, and a quality environment. Smart land use, demand management, ITS, and value pricing are critical elements in this plan for improving mobility and transportation efficiency. Specific strategies include promoting jobs/housing proximity and transit-oriented development; encouraging high-density residential/commercial development along transit/rail corridor; valuing and congestion pricing; implementing intelligent transportation systems, traveler information/traffic control, and incident management; accelerating the development of broadband infrastructure; and comprehensive, integrated, multimodal/intermodal transportation planning.	Compliant. The subsequent development would be required to comply with applicable proposed General Plan policies that encourage smart land use development. These policies are listed above in the impact discussion.
Measures to Improve Transportation Energy Efficiency Builds on current efforts to provide a framework for expanded and new initiatives, including incentives, tools, and information that advance cleaner transportation and reduce climate change emissions.	Not applicable. This measure is implemented at the statewide level.

Strategy and Description	Proposed General Plan Compliance
State and Consumer Services Agency	
Green Buildings Initiative Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels. The Executive Order and related action plan spell out specific actions State agencies are to take with State-owned and -leased buildings. The order and plan also discuss various strategies and incentives to encourage private building owners and operators to achieve the 20 percent target.	Compliant. As discussed above, the proposed General Plan would be required through Title 24 requirements.
Public Utilities Commission (PUC)	
Accelerated Renewable Portfolio Standard The Governor has set a goal of achieving 33 percent renewables in the State's resource mix by 2020. The joint PUC/Energy Commission September 2005 Energy Action Plan II (EAP II) adopts the 33 percent goal.	Not Applicable
Investor-Owned Utility This strategy includes energy efficiency programs, combined heat and power initiative, and electricity sector carbon policy for investor owned utility.	Not Applicable

As noted previously, in June of 2008, the California Governor's Office of Planning and Research (OPR) published a technical advisory entitled "CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review." As a part of this document, OPR included examples of recommended measures that lead agencies may wish to consider to reduce GHG emissions. The recommendations from OPR are contained in **Table 5.0-7**. As with the CAT strategies identified above, the OPR recommendations are broad in their scope and address a wide range of industries and GHG emission sources. Therefore, most of the recommendations are not applicable to the development and operation of any single residential project, but rather as general development policies. Also, for those recommendations that are applicable, specific regulations or detailed guidance regarding their implementation is typically not available. Thus, the proposed General Plan's compliance with these measures was evaluated by the City qualitatively with the understanding that exact compliance can only be determined once specifically applicable regulations are adopted.

TABLE 5.0-7
PROPOSED GENERAL PLAN COMPLIANCE WITH OPR GREENHOUSE GAS EMISSION REDUCTION RECOMMENDATIONS

Recommendation and Description	General Plan Update Compliance
Land Use and Transportation	
Implement land use strategies to encourage jobs/housing proximity, promote transit-oriented development, and encourage high density development along transportation corridors. Encourage compact, mixed-use projects, forming urban villages designed to maximize affordable housing and encourage walking, bicycling and the use of public transit systems.	Compliant. The subsequent development would be required to comply with applicable General Plan policies that encourage smart land use development. These policies are listed previously in the impact discussion.
Encourage infill, redevelopment, and higher density development, whether in incorporated or unincorporated settings.	Compliant. The subsequent development would be required to comply with applicable General Plan Update policies and programs that encourage smart land use development as well as infill development. These policies are listed previously in the impact discussion.
Encourage new developments to integrate housing, civic and retail amenities (jobs, schools, parks, shopping opportunities) to help reduce VMT resulting from discretionary automobile trips.	Compliant. The subsequent development would be required to comply with applicable General Plan policies that encourage mixed use development in the Downtown Orland Planning Area (Policy 2.1.A).
Apply advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services.	Compliant. The proposed General Plan includes transportation policies to improve and diversify the City's transportation system. These policies are listed previously in the impact discussion.
Incorporate features into project design that would accommodate the supply of frequent, reliable and convenient public transit.	Compliant. The subsequent development would be required to comply with applicable General Plan policies and programs that encourage smart land use development, infill development, public transportation, pedestrian and bicycle use. These policies and programs are listed previously in the impact discussion.
Implement street improvements that are designed to relieve pressure on a region's most congested roadways and intersections.	Compliant. The proposed General Plan Update includes transportation policies to improve and diversify the City's transportation system. These policies are listed previously in the impact discussion.
Limit idling time for commercial vehicles, including delivery and construction vehicles.	Compliant. There are current State restrictions that address the idling times of commercial diesel trucks. According to Greenaction for Health and Environmental Justice (Greenaction, 2009), Commercial diesel vehicles over 10,000 lbs. such as school buses, transit buses, delivery trucks, big-rigs, school pupil activity buses, general

Recommendation and Description	General Plan Update Compliance
	public paratransit vehicles and other commercial motor vehicles, are subject to a five minute idling limit per the California Anti-Idling Law which was adopted January 1, 2008 to reduce the health & environmental impact of diesel exhaust emissions. Furthermore, starting with model year 2008, all heavy-duty diesel trucks sold in California must be equipped with an automatic engine shutdown device to be activated after five minutes of idling (ARB, 2009).
Urban Forestry	
Plant trees and vegetation near structures to shade buildings and reduce energy requirements for heating/cooling.	Compliant. The City currently implements landscape requirements for development, including a parking lot shade requirement as part of its Zoning Ordinance (Chapter 17 of the Municipal Code).
Preserve or replace onsite trees (that are removed due to development) as a means of providing carbon storage.	Compliant. Mitigation measures MM 4.4.2a through MM 4.4.2c of this EIR ensure adequate protection and mitigation for trees within the Planning Area potentially affected by future development.
Green Buildings	
Encourage public and private construction of LEED (Leadership in Energy and Environmental Design) certified (or equivalent) buildings.	Compliant. The construction and operation of all buildings in the City would be required to comply with the energy efficiency standards included in Title 24 of the California Code of Regulations. Title 24 identifies specific energy efficiency requirements for building construction and systems operations that are intended to ensure efficient energy usage over the long-term life of the building.

As identified above, implementation of the proposed General Plan would be consistent with several state measures to reduce greenhouse gas emissions. However, the following mitigation is required in order to instigate Citywide programs and policies to contribute to the reduction of GHG emissions.

Mitigation Measures

MM 5.0.1 The following measure shall be implemented as a policy under Goal 5.5 of the proposed General Plan:

The City shall develop a Climate Action Plan in order to document how the City plans to reduce its greenhouse emissions to the eventual goal of achieving carbon neutrality. The Climate Action Plan shall be updated periodically in order to examine progress of the Plan and contain the following:

- A City greenhouse gas emission inventory baseline

- City greenhouse gas emission forecasts
- Greenhouse gas emissions reduction targets
- Proposed measures and policies to met reduction targets

Implementation of the policies and programs listed previously as well as mitigation measure **MM 5.0.1** makes this impact **less than cumulatively considerable**.

Climate Change Environmental Effects on the City

Impact 5.0.2 Implementation of the proposed General Plan could substantially increase emissions of GHGs over existing conditions that could result in environmental effects to the City. This impact is considered to be **less than cumulatively considerable** impact**.**

As identified above under the "Climate Setting" discussion, there have several technical studies regarding the environmental effects of climate change on the Earth as well as California. Several adverse environmental effects have been identified that are projected to impact California over the next century. However, the extents of these environmental effects are still being defined as climate modeling tools become more refined. Potential environmental effects of climate change that could impact the City could include the following (which were previously noted above):

- Adverse impacts on water supply availability;
- Increased severity of flooding events;
- Increased wildland fire hazards;
- Alteration of natural habitats for special-status plant and animal species; and,
- Air quality impacts.

Because considerable uncertainty remains with respect to the overall impact of global climate change, it is unknown whether these impacts would be significant. This also includes the uncertainty to what degree global climate change may adversely impact future water supply and availability of the City. However, based on consideration of the recent regional and local climate change studies, and considering that the City's groundwater source is anticipated to largely remain intact, it is reasonably expected that the impacts of global climate change on the City would be **less than cumulatively considerable**.

BIOLOGICAL RESOURCES

Cumulative Setting

The City of Orland and the surrounding area of Glenn County as a whole must be considered for the purpose of evaluating land use conversion issues associated with biological resources on a cumulative level. In particular, this cumulative setting condition includes the proposed and approved projects listed in **Table 4.0-7** (see Section 4.0, Introduction to the Environmental Analysis and Assumptions Used), existing land use conditions and planned development under both the proposed General Plan and the current Land Use Element of the 2003 Orland General Plan, and planned and proposed land uses and development patterns in communities near the City.

Cumulative Impacts and Mitigation Measures

Cumulative Biological Resource Impacts

Impact 4.4.6 The proposed project, in combination with other reasonably foreseeable projects, would result in direct mortality and loss of habitat for special-status species, and loss of waters of the U.S., including wetlands. This would be a **cumulatively considerable** impact.

The vegetation communities/habitats in the City of Orland region are critically important for the protection of several sensitive species. Implementation of the proposed General Plan may result in degradation of wildlife habitat through a variety of actions which, when combined with other habitat impacts occurring from development within surrounding areas, would result in significant cumulative impacts. Future development within the City of Orland and the surrounding vicinity would have an unknown and unquantifiable impact on special-status species, biologically sensitive habitats, and potentially jurisdictional features (wetlands and waters of the U.S.). The loss of wetlands and riparian forest along the Stony Creek and Hambright Creek corridor within the Planning Area would result in a decline in water quality condition, which may result in adverse effects to downstream aquatic resources and riparian habitat. Furthermore, increased development and disturbance created by human activities (e.g., fires, wildlife struck by horse or bike, increased nighttime lighting) would result in direct mortality, habitat loss, and deterioration of habitat suitability. These impacts are considered **cumulatively considerable**.

Mitigation Measures

Implementation of the proposed General Plan policies, programs, and mitigation measures discussed under Impacts 4.4.1 through 4.4.5 will reduce the proposed General Plan's impacts to these resources to a less than significant level through either resource avoidance or replacement measures. Therefore, the project's cumulative contribution to impacts on these resources would be reduced to a **less than cumulatively considerable** level.

CULTURAL RESOURCES

Cumulative Setting

The cumulative setting associated with the proposed City of Orland General Plan includes proposed, planned, reasonably foreseeable, and approved projects and development in Glenn County as described in Section 4.0 of this DEIR. Developments and planned land uses within the region would contribute to potential conflicts with cultural and paleontological resources. These resources include archaeological resources associated with Native American activities and historic resources associated with settlement, farming, and economic development.

Cumulative Impacts and Mitigation Measures

Cumulative Impacts to Prehistoric, Historic Resources, and Human Remains

Impact 4.5.3 Implementation of the proposed City of Orland General Plan, along with existing, approved, proposed, and foreseeable development in the vicinity of the City, could contribute to cumulative impacts to prehistoric resources, historic resources, and human remains. This contribution is considered **cumulatively considerable**.

Cumulative development in the region would result in the loss and/or degradation of cultural resources. The potential disturbance of human remains would also increase. These cumulative effects of development on cultural resources would be significant. Current archaeological and historical investigations for the Project did not identify any prehistoric or historic resources or human remains within Planning Area boundaries. Regardless, there is the potential for the proposed Project to uncover previously undiscovered cultural resources because of the area's historic occupation by both Native Americans and Euroamericans. The proposed General Plan's potential to contribute to the loss of these resources is **cumulatively considerable**.

Mitigation Measures

Implementation of mitigation measures **MM 4.5.1a, 4.5.1b,** and **4.5.1c** would assist in reducing significant impacts to known and unknown prehistoric and historic resources and human remains. Therefore, cumulative impacts related to prehistoric and historic cultural resources and human remains would be reduced to **less than cumulatively considerable**.

Cumulative Impacts to Paleontological Resources

Impact 4.5.4 Implementation of the proposed City of Orland General Plan, along with existing, approved, proposed and foreseeable development in the region could result in the potential disturbance of paleontological resources (i.e., fossils and fossil formations). This is considered a **cumulatively considerable** impact.

Cumulative development in the region would result in the loss and/or degradation of paleontological resources. These cumulative effects of development on paleontological resources would be significant. As discussed under Impact 4.5.2, there are no known paleontological resources in the Planning Area. However, due to the previous discovery of paleontological resources in Glenn County, there is the potential for undiscovered paleontological resources. The proposed General Plan's potential to contribute to the loss of these resources is **cumulatively considerable**.

Mitigation Measures

Implementation of mitigation measure **MM 4.5.2** would assist in reducing significant cumulative impacts to known and unknown paleontological resources. Therefore, cumulative impacts related to paleontological resources would be reduced to **less than cumulatively considerable**.

GEOLOGY AND SOILS

Cumulative Setting

Site-specific topography, soil conditions, and surrounding development generally determine geological, soil, and mineral resource related impacts, which generally are not considered cumulative in nature. However, surficial deposits, namely erosion and sediment deposition, can be cumulative in nature, depending on the type and the amount of development proposed in a given geographical area. Further, land uses that contribute to the prevention of mining mineral resources recovery can contribute to the cumulative loss of availability of such resources.

Construction constraints are based on specific sites within a proposed development and each site's soil characteristics and topography. As previously discussed, all new development and

redevelopment within the General Plan Planning Area boundaries must comply with the 2007 California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code (CBSC). Individual development projects may be required to submit a geotechnical report, which contains construction and design guidelines and site-specific recommendations to reduce potential geologic and soil-related hazards. Additionally, any new development disturbing one acre of land or more is subject to a National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit, and all applicants are required to prepare and comply with an approved Storm Water Pollution Prevention Plan (SWPPP) that serves to reduce soil erosion-related impacts.

Cumulative Impacts and Mitigation Measures

Cumulative Geological and Seismic Hazards

Impact 4.6.9 Cumulative development in the City has the potential to locate buildings and persons in areas considered to be potentially hazardous. This is considered a **less than cumulatively considerable** impact.

Given the General Plan Planning Area's geologic and soil composition, as well as the required compliance with standard building standard requirements, the proposed City of Orland General Plan's cumulative geology and soil impacts are considered **less than cumulatively considerable**.

Mitigation Measures

None required.

HAZARDOUS MATERIALS

Cumulative Setting

The cumulative setting for hazards and human health risks associated with the proposed General Plan includes the City of Orland Planning Area. Hazardous material, human health, and safety impacts as described in CEQA Appendix G are generally site-specific and not cumulative by nature. The potential cumulative impacts due to the increased use of hazardous materials resulting from proposed development under the proposed General Plan include, but are not limited to, air quality, noise, water quality, flooding, and fire, as well as exposure to multiple contaminants. The cumulative impacts associated with affected resources, such as air and water, are analyzed in the applicable technical sections of this DEIR.

Cumulative Impacts and Mitigation Measures

Cumulative Hazards and Health Risks

Impact 4.6.10 Implementation of the proposed City of Orland General Plan could expose persons to hazards throughout the life of the General Plan. This is considered a **less than cumulatively considerable** impact.

The cumulative effects from land uses proposed in association with the proposed General Plan could create a risk to public health from exposure to natural hazards (e.g., flooding and fire) and hazardous materials (groundwater contamination, PCB-containing transformers, USTs/ASTs, etc.). Natural hazards and hazardous material-related impacts are generally site-specific and each individual development is responsible for mitigating such risks. Exposure to natural hazards can

be controlled through proper site design, best management practices during construction and operation, compliance with established building requirements, and appropriate zoning. Various land uses (commercial, industrial, schools, and even residential properties) will use limited hazardous materials during construction and operational activities. All new and existing projects are required to comply with all federal, state, and local regulations regarding the handling, transportation, and disposal of hazardous materials. Therefore, the proposed General Plan's cumulative hazardous material impacts and threats to public health are considered **less than cumulatively considerable.**

Mitigation Measures

None required.

HYDROLOGY AND WATER QUALITY

Cumulative Setting

The cumulative setting includes the City of Orland General Plan Planning Area and the Sacramento River Hydrologic Region. The Hydrologic Region covers approximately 17.4 million acres (27,200 square miles) (DWR, 2006). The region includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties. Geographically, the region extends south from the Modoc Plateau and Cascade Range at the Oregon border to the Sacramento-San Joaquin Delta. The Sacramento River is the longest river system in the State of California with the Pit, Feather, Yuba, Bear, and American rivers as major tributaries.

The Sacramento River Hydrologic Region is the main water supply for much of California's urban and agricultural areas. Annual runoff in the Sacramento River Hydrologic Region averages about 22.4 million acre-feet, which is nearly one-third of the state's total natural runoff. Major water supplies in the region are provided through surface storage reservoirs. The Shasta Dam Reservoir is one of the two largest surface water projects in the region. In all, there are more than 40 major surface water reservoirs in the region.

Cumulative Impacts and Mitigation Measures

Cumulative Water Quality Impacts

Impact 4.7.5 Implementation of the proposed General Plan and potential development of the City would include substantial grading, site preparation, and an increase in urbanized development. Increased development would contribute to cumulative water quality impacts and is considered **less than cumulatively considerable**.

As described under Impact 4.7.1, implementation of the proposed General Plan would allow for the development of urban uses in an area which is currently vacant land or agricultural land. This would add to other potential development activities within Glenn County and adjacent areas, depending on the timing and rate of development. Development of this acreage will result in cumulative water quality impacts, which include impacts on surface water and groundwater quality and potential impacts to water supply.

All new and redevelopment construction projects are required to submit grading plans, and all grading plans would need to be reviewed and approved by the City. These plans would also be

submitted to the Central Valley Regional Water Quality Control Board for approval under the National Pollutant Discharge Elimination System construction activities stormwater permit. New development in excess of one acre is subject to an NPDES permit. The purpose of the permit is to protect water quality from development areas that would discharge into a surface water body. During construction of the project, the discharger must eliminate non-stormwater discharges to stormwater systems, develop and implement a Storm Water Pollution Prevention Plan, and perform monitoring of discharges to stormwater systems. The Construction Stormwater General Permit adopted by the State Water Resources Control Board requires the project applicant and/or contractor to develop and implement a SWPPP. This plan must specify best management practices that would prevent all construction pollutants from contacting stormwater, with the intent of keeping all products of erosion from moving off-site into receiving waters. The permit also requires elimination or reduction of non-stormwater discharges to receiving waters and inspection of all best management practices. The State has published a set of best management practices for both pre- and post-construction periods.

Mitigation Measures

Implementation of the proposed General Plan policies and programs described under Impacts 4.7.1, 4.7.2, 4.7.3, and 4.7.4 would ensure the attainment of water quality standards and protection of beneficial uses consistent with applicable water quality requirements. Thus, the proposed General Plan's contribution to cumulative water quality impacts would be reduced to **less than cumulatively considerable**.

Cumulative Flood Hazards

Impact 4.7.6 Implementation of the proposed General Plan would increase impervious surfaces and alter drainage conditions and rates in the Planning Area, which could contribute to cumulative flood conditions along the Sacramento River and other local waterways. However, the proposed General Plan contains adequate proposed General Plan policies and programs that address drainage and flooding issues. This is considered a **less than cumulatively considerable** impact.

As described under Impact 4.7.4, urban development under the proposed General Plan would increase impervious surfaces in the Planning Area that would contribute (in combination with cumulative development in the watershed) to increases in flood conditions for area waterways. The project would also increase the regional population that could be exposed to flooding as a result of the failure of Black Butte Dam. However, such an event has an extremely low probability of occurring and is not considered to be a reasonably foreseeable event.

Mitigation Measures

Implementation of the proposed General Plan policies and programs described under Impact 4.7.4 would ensure that drainage and flood-related impacts would be adequately mitigated. Thus, the proposed General Plan's contribution to cumulative drainage and flood-related impacts would be reduced to **less than cumulatively considerable**.

LAND USE

Cumulative Setting

Land use impacts are typically isolated to a jurisdiction, except where land uses may interact or conflict with adjacent jurisdictions. The cumulative setting for land use includes existing, approved, proposed, and reasonably foreseeable development within the Planning Area. There are known development projects (see **Table 4.0-7** in Section 4.0) in the City that will contribute to cumulative changes in the landscape and land uses within the Planning Area. The reader is referred to Section 4.2, Agricultural Resources, for discussion of cumulative agricultural-related impacts.

Cumulative Impacts and Mitigation Measures

Cumulative Land Use Conflicts

Impact 4.8.4 Implementation of the proposed General Plan, in addition to existing, proposed, approved, and reasonably foreseeable development in the City and Glenn County, would contribute to cumulative land conflicts. This would be a **less than cumulatively considerable** impact.

Under cumulative conditions, the proposed General Plan and subsequent development would not contribute to land use conflicts beyond those discussed in Impacts 4.2.2, 4.2.3, 4.9.1, and 4.9.2. Conflicts between planning documents, such as the Orland Haigh Field Airport Comprehensive Land Use Plan and the proposed General Plan Land Use Map, would be specific to the proposed General Plan and to individual development projects and would not have an increased significance in the aggregate under cumulative conditions. Similarly, land use conflicts, particularly those between urban and agricultural resources that would occur under cumulative development conditions, would also be site-specific. There are known development projects in the City as well as in Glenn County that will contribute to cumulative changes in the landscape and land uses within the Planning Area. However, these projects are not expected to interact or conflict with one another. This impact is **less than cumulatively considerable**.

Mitigation Measures

None required.

NOISE

Cumulative Setting

The cumulative noise setting takes into account existing development within the Planning Area, planned development under the existing General Plan, potential future development within the City's Planning Area, and buildout of the proposed General Plan. Development in the region would increase housing, employment, and shopping and recreational opportunities, which would in turn result in new noise generators and noise-sensitive receivers.

The following accounts for regional traffic conditions under the project buildout and operations by existing and future commercial/industrial uses (stationary sources) in the Planning Area. The

future (cumulative) ambient noise environment would be affected by buildout of the proposed General Plan and planned development in surrounding communities.

Cumulative Impacts and Mitigation Measures

Cumulative Increase of Ambient Traffic Noise Levels

Impact 4.9.6 Implementation of the proposed General Plan would result in significant increases in noise levels within Orland. This is considered a **cumulatively considerable** impact.

Buildout of the City Planning Area under the proposed General Plan would result in greater traffic volumes on City roadways than exist today and would result in a substantial increase in traffic noise.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed General Plan contains policies and programs which include mitigation requirement that contain specific performance standards addressing traffic noise. These policies are listed under Impact 4.9.2.

It is recognized that the proposed General Plan policies identified under Impacts 4.9.2 as well as mitigation measure **MM 4.9.4**, used individually or collectively, can result in a reduction of traffic noise levels at affected sensitive receptor locations. Nonetheless, despite the implementation of such a noise abatement program, it is infeasible to ensure that existing residential uses will not be exposed to future traffic noise levels exceeding the City's noise standards or significantly exceeding levels they are exposed to today. For example, it may not be possible to construct a noise barrier at an existing residence due to engineering constraints (utility easements or driveway openings), and building façade sound insulation would only benefit interior spaces, so outdoor activity areas may still be affected. It may also be infeasible to reduce speed limits in areas where speed surveys would not safely support the reduction. In addition, busy streets tend to also serve commercial uses, so restricting trucks on the busier streets may be impractical. Although a combination of the listed measures could be highly effective in reducing traffic noise levels, it is not possible to state with absolute certainty that it would be possible to mitigate this impact at every noise-sensitive use within the Planning Area. As a result, this impact would remain **cumulatively considerable** and thus **significant and unavoidable**.

POPULATION/HOUSING/EMPLOYMENT

Cumulative Setting

The cumulative setting for population and housing includes existing, approved, proposed, and reasonably foreseeable developments in both the Planning Area and Glenn County. Glenn County has two incorporated areas: Orland and Willows. It also has several unincorporated communities, which include Afton, Artois, Butte City, Elk Creek, and Hamilton City, among others. Additionally, the projects in Glenn County, Tehama County, Butte County, and Colusa County would contribute to cumulative population and housing conditions. **Table 4.10-7** provides a summary of regional growth projections that encompasses areas that would be directly and indirectly impacted by implementation of the proposed General Plan.

TABLE 4.10-7
REGIONAL GROWTH PROJECTIONS FOR THE YEAR 2030

Jurisdiction	Projected 2030 Population
Glenn County	45,181
Butte County	334,842
Colusa County	34,448
Tehama County	62,419

Source: DOF, 2008

Cumulative Impacts and Mitigation Measures

Cumulative Population and Housing Growth

Impact 4.10.3 Implementation of the proposed General Plan, in addition to existing, proposed, approved, and reasonably foreseeable development in the area, could result in a cumulative increase in population and housing growth in the City and associated environmental impacts. This is a **cumulatively considerable** impact.

According to 2008 DOF estimates, there were 2,643 housing units in the City of Orland. Implementation of the proposed General Plan could potentially result in the theoretical construction of approximately 13,776 new residential dwelling units in the Planning Area at buildout. See **Table 4.10-8** for buildout projections. However, buildout is defined as the development of land to its full potential or theoretical capacity as permitted under current or proposed planning or zoning designations. This buildout projection of new residential dwelling units is under theoretical optimum conditions, simply calculated by multiplying the number of acres by the number of units allowed per acre. The buildout does not take into account site-specific constraints, economic factors, market forces, and regulatory restrictions such as General Plan policies, City ordinances implementing the General Plan, and regulatory requirements imposed by state and federal agencies. Therefore, the theoretical maximum buildout potential does not reflect the actual number of dwelling units based on proposed General Plan land use densities.

While the buildout potential for the proposed General Plan land use designations would be approximately 16,419 dwelling units, it is unlikely that this potential will be met by the proposed General Plan's planning horizon of 2028. This principle is exemplified by a review of the historical data and projected growth for the City, as described in Section 4.0. When compared with the DOF 2008 estimate of 2,643 housing units, there could potentially be a 13,776-unit increase in housing units at buildout. This information is summarized in **Table 4.10-8**.

TABLE 4.10-8
GENERAL PLAN PLANNING AREA

	Existing	Theoretical Buildout	Change	% Change
Residential Units	2,643	16,419	13,776	521%
Population	7,353	46,513	39,160	533%

As shown in **Table 4.10-8**, development under the proposed General Plan could potentially lead to a substantial increase in population and housing in the Planning Area under buildout conditions. In addition, **Table 4.10-7** provides a summary of regional growth projections that encompasses areas that would be directly and indirectly impacted by implementation of the proposed General Plan. The projects in these regions would create new residences and employment opportunities in the areas surrounding the City of Orland and contribute to the cumulative impacts on population and housing growth in the region. The environmental effects of the approved projects in the regions surrounding Orland have already been considered. The respective jurisdictions will evaluate the environmental effects of the proposed and reasonably foreseeable projects on population and housing growth as projects are processed. As the added population would require housing, this would also lead to a cumulatively considerable increase in housing stock, with the associated environmental impacts discussed under Impacts 4.10.1 and 4.10.2.

The DEIR contains mitigation measures where appropriate to reduce or eliminate potentially significant impacts associated with population growth in the City. While the proposed General Plan contains policies that would help offset the effects of population growth, there are no measures that would completely mitigate the environmental effects of population growth under cumulative conditions. Even with implementation of proposed General Plan policies and mitigation measures, environmental impacts would remain significant, as population growth will inevitably occur and housing and other services would need to be provided to accommodate this growth. The only mitigation to reduce the population and housing unit increase to a less than significant level would be a cessation of housing construction in the City. However, this is contradictory to the objectives of the proposed General Plan and considered infeasible mitigation. Therefore, impacts related to population growth would be **cumulatively considerable** and **significant and unavoidable**.

Mitigation Measures

None feasible.

COMMUNITY SERVICES

CUMULATIVE SETTING – FIRE PROTECTION AND EMERGENCY MEDICAL RESPONSE

The cumulative setting for fire protection and emergency medical services includes the General Plan Planning Area. Potential future development of these areas would further increase cumulative demand for fire protection, emergency medical services, and related facilities, necessitating new fire stations which could result in environmental impacts.

Cumulative Impacts and Mitigation Measures

Cumulative Increase in Demand for Fire Protection and Emergency Medical Services

Impact 4.11.1.3 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the City, contributing to the cumulative demand for fire protection and emergency medical services. As a result, additional fire and emergency medical services and related facilities would be required. This is considered a **less than cumulatively considerable** impact.

Implementation of the proposed General Plan would require additional fire related services, equipment, and facilities to adequately serve the projected development within the Planning Area. Funding from property taxes, developer fees, impact fees, and other alternative sources of funding would provide sufficient resources to serve the needs of the Orland Volunteer Fire Department. Subsequently, future development proposed in association with the General Plan would increase revenues for the Orland Volunteer Fire Department and provide funding to accommodate the additional growth. Individual development projects would be subject to CEQA review on a project-by-project basis, ensuring that impacts would be less than cumulatively considerable.

On a cumulative basis, future development of residential units in natural areas that support a variety of trees, shrubs, and native grasses (Stony and Hambright creeks) have the potential to provide a substantial source of fuel and a potential to ignite and pose safety risks to adjacent and surrounding developments. Development in these areas has the potential to expose people or structures to risk of loss, injury, or death involving fires.

Implementation of Safety Element policies and programs listed under Impacts 4.11.1.1 and 4.11.1.2 would reduce the General Plan's contribution to cumulative impacts on fire protection and emergency medical service related impacts to **less than cumulatively considerable**.

Mitigation Measures

None required.

CUMULATIVE SETTING – POLICE PROTECTION

The cumulative setting for law enforcement includes the entire City of Orland. The development associated with the proposed General Plan and growth in the City (based on land use projections identified in the Orland General Plan) would result in population increases. Population growth would contribute to incremental cumulative increases in demand for law enforcement, resulting in additional environmental impacts associated with the development of new facilities.

Cumulative Impacts and Mitigation Measures

Cumulative Increase in Demand for Law Enforcement Services

Impact 4.11.2.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the City, contributing to the cumulative demand for law enforcement services and facilities. As a result, additional law enforcement services and related facilities would be required. This is considered a **less than cumulatively considerable** impact.

Implementation of the proposed General Plan would require additional law enforcement related services, equipment, and facilities to adequately serve the projected development within the City. Expansion of the City's Planning Area and city limits under the proposed General Plan would result in a projected 2028 population of approximately 12,286, an increase of 4,933 persons over the existing population. The Police Department seeks to maintain an officer per citizen ratio of 1.9 sworn officers per 1,000 residents. Based on these preferred ratios, the City at proposed General Plan buildout population in 2028 would require the addition of nine officers and three patrol vehicles. The Police Department notes that the existing station no longer has

the capacity to house additional staff and equipment under current conditions; however, renovation of the building on Fourth Street will provide adequate space, nearly doubling the area of the current building.

Funding from property taxes and other alternative sources of funding (such as impact fees) would provide sufficient resources to serve the projected needs of the Orland Police Department. Subsequently, future development proposed in association with the General Plan would increase revenues for the Police Department and provide funding to accommodate the additional growth. Individual development projects would be subject to CEQA review on a project-by-project basis, ensuring that impacts would be less than cumulatively considerable.

Implementation of the proposed General Plan Safety Element policies and associated programs listed under Impact 4.11.2.1 would ensure that the proposed General Plan's cumulative law enforcement related impacts are **less than cumulatively considerable**.

Mitigation Measures

None required.

CUMULATIVE SETTING – SCHOOLS

The cumulative setting for the educational system includes all of the schools within the Orland Unified School District. The development associated with the proposed Orland General Plan and growth in the Planning Area would result in population increases. These increases would contribute to an incremental cumulative increase in demand for schools resulting in additional environmental impacts associated with the development of new facilities.

Cumulative Impacts and Mitigation Measures

Cumulative School Impacts

Impact 4.11.3.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would result in a cumulative increase in student enrollment and require additional schools and related facilities to accommodate the growth. This is a **less than cumulatively considerable** impact.

Implementation of the proposed General Plan would require additional educational services and facilities to adequately serve the projected development within the City. Funding from property taxes and other alternative sources of funding such as grants would provide sufficient resources to serve the projected needs of the City schools.

However, current State law states that the environmental impact of new development on school facilities is considered fully mitigated through the payment of required development impact fees. Furthermore, any significant expansion of school facilities or the development of new school facilities would be subject to the appropriate environmental review.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Orland Unified School District is subject to CEQA and California Department of Education standards for proposed school projects. These standards would reduce the potential for significant environmental impacts to occur in association with the construction of new school

facilities in the Planning Area. Additionally, current State law states that the environmental impact of new development on school facilities is considered fully mitigated through the payment of required development impact fees. Therefore, cumulative impacts on public school facilities are considered **less than cumulatively considerable**.

Mitigation Measures

None required.

CUMULATIVE SETTING – PARKS AND RECREATION

The cumulative setting for parks and recreation services includes all recreation facilities in the City. Potential future development of these areas would also result in cumulative demand for parks and recreation services.

Cumulative Impacts and Mitigation Measures

Cumulative Park and Recreation Demands

Impact 4.11.4.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would require additional park and recreation facilities within the Planning Area boundaries. This would be a **less than cumulatively considerable** impact.

Under buildout conditions, the City could potentially have an anticipated population of 46,513 (as shown on **Table 4.0-1**). The buildout population would be an increase of 39,160 persons over the 2008 population. Assuming Orland's park dedication standard of 8.4 acres of improved parkland per 1,000 residents, a total of 329 acres additional parkland over existing conditions would be needed for parkland acquisition and improvement (46,513 persons/1,000 persons x 8.4 acres of parkland = 391 acres – 53.1 existing acres of parkland = 337.9 acres).

Funding from development in-lieu fees and other alternative sources of funding such as grants would provide sufficient resources to serve the projected needs of the City's parks and recreational facilities. Further, implementation of the proposed General Plan Open Space, Conservation, and Public Facilities Element goals, policies, and programs listed under **Impact 4.11.4.1,** along with mitigation measure **MM 4.11.4.1**, ensures that the proposed General Plan's cumulative parks and recreation related impacts are **less than cumulatively considerable.**

Mitigation Measures

None required.

PUBLIC SERVICES AND UTILITIES

Cumulative Setting – Water Service

The cumulative setting for water supply includes all of the Orland Planning Area. Potential future development of this area would also result in cumulative demand for water resources and associated facilities.

Cumulative Impacts and Mitigation Measures

Cumulative Water Service Impacts

Impact 4.12.1.3 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the Planning Area, contributing to the cumulative demand for water resources and associated facilities. As a result, additional water supply resources would be required. This is considered a **cumulatively considerable** impact.

Buildout of the proposed General Plan could increase the population of the City to 46,513 residents. The California Water Plan estimates that internal per capita use of water is approximately 80 gallons per person per day which, at full buildout, would increase the water need to a total 3,721,040 gallons per day for internal (non-irrigation) use. Irrigation needs could increase the water demand by another 40 gallons per person per day or more.[7] These needs could result in demand for another 1,860,520 gallons per day for a rough total of over 5.5 million gallons per day. This equates to approximately 17 acre-feet per day, or approximately 6,205 acre-feet per year.

As discussed in Section 4.0, Introduction to the Environmental Analysis and Assumptions Used, full buildout of the proposed General Plan is a mathematical calculation and very unlikely to occur within the 2028 planning horizon. However, at such time as buildout condition occurs, implementation of the proposed General Plan policies and programs listed under Impact 4.12.1.1 along with mitigation measures **MM 4.12.1.1a** through **MM 4.12.1.1d** would ensure that there is adequate water supply and facilities available. The contribution of the proposed General Plan to cumulative impacts on water supply would be reduced to a level which is considered **less than cumulatively considerable**.

Mitigation Measures

None required.

Cumulative Setting – Wastewater Service

The cumulative setting for wastewater service includes all of the Orland Planning Area. Potential future development of these areas would also result in cumulative demand for wastewater services and associated facilities.

Cumulative Impacts and Mitigation Measures

Cumulative Wastewater Service Impacts

Impact 4.12.2.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the Planning Area, contributing to the cumulative demand for wastewater services and associated facilities. As a result, additional wastewater service

[7] Record and Internet search for a per capita water consumption figure provided a wide range of numbers depending on geographic area, climate, housing type and density. These figures, taken from the California Water Plan, were used because they divided the overall 'per capita' figure into internal/external figures.

resources would be required. This is considered a **cumulatively considerable** impact.

Buildout of the proposed General Plan could increase the population of the City to 46,513 residents. The capacity of the collection system is 3.4 mgd (based on peak flow) and the capacity of the WCTF is 2.1 mgd (based on average flows). Based on these numbers, the system is currently operating at about 36 percent of capacity. Potential development constructed as a result of implementation of the proposed General Plan land use designations would substantially increase cumulative demands for wastewater services and related facilities. The contribution of growth under the proposed General Plan would likely trigger the need for new wastewater conveyance and treatment systems. The physical effects of constructing new trunk systems and treatment facilities will be analyzed by the City in separate environmental documents. All new development projects are required to pay development impact fees and construct necessary wastewater improvements to ensure adequate financing. Potential environmental effects associated with additional wastewater facility expansion include, but are not limited to, air quality, biological resource impacts to protected habitat, cultural resources (depending on location), hazardous materials, land use, noise, traffic, visual resources, waste management, water and soil resources, and health hazards.

Implementation of the proposed General Plan Land Use Element and Open Space, Conservation, and Public Facilities Element policies and associated programs listed under Impact 4.12.2.1, as well as mitigation measures **MM 4.12.1.1a** and **MM 4.12.2.1**, will assist in reducing the proposed General Plan's cumulative wastewater-related impacts. Proposed General Plan impacts to wastewater conveyance and treatment are considered to be **less than cumulatively considerable**. This conclusion is applicable to both the potential impacts that could be caused by cumulative conditions and the project's incremental effects.

Mitigation Measures

None required.

Cumulative Setting – Storm Water Service

The cumulative setting for stormwater drainage services includes all of the Orland Planning Area. Potential future development of these areas would also result in cumulative demand for stormwater drainage infrastructure.

Cumulative Impacts and Mitigation Measures

Cumulative Stormwater Service Impacts

Impact 4.12.3.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase development within the Planning Area, contributing to the cumulative demand for stormwater services and associated facilities. As a result, additional stormwater service resources would be required. This is considered a **less than cumulatively considerable** impact.

Buildout of the proposed General Plan could increase the population of the City to 46,513 residents. As discussed under Impact 4.12.3.1, existing downstream storm drainage facilities may have insufficient capacity to accept the additional runoff generated by the additional development. Therefore, construction of stormwater detention facilities and/or downstream

storm drainage conveyance facilities would be necessary to mitigate the impacts of increased runoff. The City has adopted a Storm Drainage Master Plan that identifies future needs of the storm drainage system. Implementation of the proposed General Plan policies and programs listed under Impact 4.12.3.1 would reduce the contribution of the proposed General Plan to cumulative impacts on stormwater services to a level which is considered **less than cumulatively considerable**.

Mitigation Measures

None required.

Cumulative Setting – Solid Waste Service

The cumulative setting for solid waste services includes all of the Orland Planning Area. Potential future development of these areas would also result in cumulative demand for solid waste services and associated facilities.

Cumulative Impacts and Mitigation Measures

Cumulative Solid Waste Impacts

Impact 4.12.4.2 Implementation of the proposed General Plan would generate solid waste that would require expanded collection and disposal services. This is considered a **cumulatively considerable** impact.

Buildout of the proposed General Plan could increase the population of the City to 46,513 residents and produce 16,419 dwelling units. Based on the existing population of 7,353 and assuming that each person generates 0.27 tons of solid waste each year, as established by the California Integrated Waste Management Board (CIWMB), buildout of the proposed General Plan would create an additional 10,573 tons of solid waste per year over existing conditions (39,160 x 0.27 = 10,573) for a total of 12,559 tons of solid waste per year (46,513 x 0.27 = 12,559). Assuming that each person generates 1.5 pounds of solid waste per day (CIWMB), buildout of the proposed General Plan would result in approximately 69,800 total pounds per day of solid waste. Implementation of the proposed General Plan goals and policies listed under Impact 4.12.4.1, along with mitigation measures **MM 4.12.4.1a** through **MM 4.12.4.1d**, would reduce the contribution of the proposed General Plan to cumulative impacts on solid waste services to a level which is considered **less than cumulatively considerable**.

Mitigation Measures

None required.

Cumulative Setting – Electric, Natural Gas, and Infrastructure

The cumulative setting for energy and communication services includes all of the Orland Planning Area. Potential future development of these areas would also result in cumulative demand for energy and communication services and associated facilities.

Cumulative Impacts and Mitigation Measures

Cumulative Electrical, Natural Gas, and Infrastructure Impacts

Impact 4.12.5.2 Implementation of the proposed General Plan in combination with other reasonably foreseeable development would increase the population within the Planning Area, contributing to the cumulative demand for energy and communication services and associated facilities. As a result, additional resources would be required. This is considered a **less than cumulatively considerable** impact.

Buildout of the proposed General Plan could increase the population of the City to 46,513 residents. As discussed under Impact 4.12.5.1, infrastructure and facility extensions would be required to serve future development. New developments generally provide the required infrastructure to connect to these systems or provide easements within which the necessary infrastructure can be installed. In general, new utility lines can be installed with little problem. However, installation of new facilities could have potentially significant environmental impacts. Future energy and communications infrastructure projects would be reviewed for compliance with CEQA on a project-by-project basis. Implementation of the proposed General Plan policy and program listed under Impact 4.12.5.1 would reduce the contribution of the proposed General Plan to cumulative impacts on energy and communication services to a level which is considered **less than cumulatively considerable**.

Mitigation Measures

None required.

TRANSPORTATION AND CIRCULATION

Cumulative Setting

Anticipated development pursuant to the proposed General Plan would contribute to increased traffic at local intersections and roadways as well as to SR 32 and I-5 as discussed previously. This would affect the level of service of the roadways and intersections connecting to the roadways. Furthermore, the increase in housing and employment opportunities in the City would add more interregional traffic.

Consistent with the 20-year planning horizon for the proposed City of Orland General Plan, an assessment of potential circulation impacts in the year 2028 is provided in Section 4.13, Transportation and Circulation. However, as noted previously, development through the year 2028 would not result in full buildout of the land use diagram (**Figure 3.0-3** of the Project Description) for the proposed General Plan. This is because the theoretical buildout of the proposed General Plan land uses is extraordinarily high and virtually unattainable within the planning period of the General Plan (2008-2028). Therefore, the land use diagram provides for planning of growth in the Orland Planning Area beyond the year 2028.

Specific land use development forecasts are not available for the period beyond the 20-year planning horizon for the proposed General Plan. Therefore, a detailed quantitative analysis of traffic operating conditions beyond the 20-year period has not been conducted. The following presents a screening-level assessment of potential cumulative circulation impacts beyond the 20-year planning horizon.

Cumulative Impacts and Mitigation Measures

State Route 32

Impact 4.13.6 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase traffic volumes on SR 32 through the year 2028 and beyond the General Plan 20-year planning horizon. The proposed General Plan's contribution to these conditions is considered **potentially cumulatively considerable**.

Beyond the 20-year planning horizon of the proposed General Plan, traffic volumes on SR 32 would continue to increase. The increase would result from both land use development in Orland and from regional through trips unrelated to development in Orland.

Caltrans is the agency responsible for SR 32. The *Transportation Concept Report State Route 32* (California Department of Transportation, 2007) is Caltrans' long range planning document for SR 32. This Report (page 5) provides a description of improvements recommended by Caltrans for the portion of SR 32 in the Orland Planning Area. The following are excerpts from this document:

> "Both the City of Orland and Glenn County have indicated the need for future expansion of SR 32 to four lanes. Due to the existing right of way restrictions west of Papst Avenue, the expansion to four lanes will be limited to the portion of SR 32 between Papst Avenue and County Road N. To lessen the environmental and aesthetic impacts that a road widening can have on a main street highway, it is suggested that curbs, gutters, sidewalks and landscaping be included in the design of future capacity improvements."

The Transportation Concept Report State Route 32 refers to "segments" of SR 32:

- Segment 1 is from I-5 to 6th Street,
- Segment 2 is from 6th Street to County Road N, and
- Segment 3 is from County Road N to SR 45 (east Orland).

The *Transportation Concept Report State Route 32* presents the following description of an "Orland Truck Bypass":

- "Glenn County has submitted a $1.3 million dollar 2006 STIP augmentation candidate to widen and rehabilitate County Road 27 from I-5 to County Road P, continuing north on County Road P to SR 32. This project is planned to ultimately act as a truck bypass of Orland (Segments 1 and 2) connecting I-5 to Segment 3."

The *Transportation Concept Report State Route 32* presents the following descriptions of "Conceptual Improvements" with estimated construction costs in thousands of dollars and estimated construction completion year:

- "Expansion of east/west parallel facilities, to be integrated in planned development (cost to be identified; 2010)

- "Widen to four lanes with left-turn lane channelization from Papst Avenue to County Road N ($2,678; 2015/2020)

- "Traffic signals SR 32 at Papst, Hambright Road, Orland Park, and County Road N, with intersection improvements when warranted (Locally funded -- $1,000; 2007/2010)

- "Curbs, gutters and sidewalks east of East Street should be considered in conjunction with planned development (to be part of development)"

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

Circulation: Program 3.3.C.1, Policy 3.4.B

Program 3.3.C.1 states that signalization shall be considered at the intersection of SR 32 and the northbound ramps at Interstate 5 while Policy 3.4.B mandates that the City shall work with Caltrans to identify needed improvements to its highway facilities in the City and implement necessary programs to assist in improving State Route interchanges/intersections with local roadways.

Mitigation Measures

MM 4.13.6 The following mitigation measure shall be added as a new policy under Goal 3.4 of the proposed General Plan:

The City shall participate in regional roadway facility improvement programs established by Glenn County and/or Caltrans in order to address its fair-share of traffic impacts.

The long term post-2028 increase in traffic volumes on SR 32 would adversely affect traffic operations. Implementing Program 3.3.C.1, Policy 3.4.B, and mitigation measure **MM 4.13.6** as well as the improvements recommended by Caltrans in the *Transportation Concept Report State Route 32* would reduce this impact; however, until such time that the improvements identified in the *Transportation Concept Report State Route 32* are programmed and funded their implementation cannot be ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

East-West Roadways

Impact 4.13.7 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional east-west roadway capacity. This is considered **cumulatively considerable**.

The circulation system in the Orland Planning Area includes several north-south roadways, including I-5, 8th Street, 6th Street, East Street, Papst Avenue, and County Road N. In part because of I-5 and the railroad tracks, east-west roadways are more limited, with SR 32 and South Street being the main east-west roadways. This pattern of roadways results in the circulation system having greater capacity in the north-south direction and relatively less capacity in the east-west direction.

In the future, demand for additional east-west roadway capacity will increase. As noted previously, the increase in demand would result from both land use development in Orland and from regional through trips unrelated to development in Orland. Caltrans has noted the expected increase in demand, recommending in the *Transportation Concept Report State*

Route 32 (California Department of Transportation, 2007), "Expansion of east/west parallel facilities, to be integrated in planned development…"

The proposed General Plan circulation system includes extension of Stony Creek Drive to both the west and east. The extension of Stony Creek Drive would provide additional east-west capacity through the northern part of the City. Further additions to east-west capacity in the northern part of the City are constrained by existing land use development and the presence of Stony Creek waterway.

Development beyond the 20-year proposed General Plan planning period (known as buildout) in the area south of South Street would be substantial. As shown in **Figure 3.0-3** of the Project Description, buildout development would include:

- Low Density Residential, Light Industrial/Commercial, and Heavy Industrial development between the current City Limits and County Road 18;
- Light Industrial/Commercial, and Heavy Industrial development in the vicinity of Haigh Field; and
- Residential Estate development between County Road 18 and County Road 20.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed City of Orland General Plan contains no policies or programs that would assist in reducing potential impacts to east-west roadways specifically. However, the policies and programs listed under **Impacts 4.13.1** and **4.13.2** would assist in reducing impacts to east-west roadways.

Buildout development would not occur until beyond the 20-year General Plan planning horizon and would be approximately equal in size to the existing City. Because of the current limitation on east-west capacity, this development would result in substantial demand for additional east-west capacity. In order to reduce this impact to a less than significant level, the City should reserve right-of-way along the County Road 18 corridor as land use development occurs in the corridor. The right-of-way should be wide enough for a four-lane roadway. In the future, as more is known about the size and nature of development in the corridor, quantitative analysis should be conducted to identify the specific improvements that should be implemented. As noted above, mitigation measure **MM 4.13.6** states that the City shall participate in regional roadway facility improvement programs established by Glenn County and/or Caltrans in order to address its fair-share of traffic impacts.

However, until such time that the right-of-way along the County Road 18 corridor is able to be reserved by the City and the recommended quantitative analysis and subsequent improvements are programmed and funded, their implementation cannot be ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

Mitigation Measures

None available.

County Road HH

Impact 4.13.8 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road HH. This is considered **cumulatively considerable**.

Extending County Road HH to the south from its current terminus at County Road 15 to County Road 16 is included in the proposed General Plan. Both widening and extending County Road HH would be needed to support land use development in this area on the west side of I-5.

It is recommended that the alignment of the County Road HH traverse to the southwest from the current terminus at County Road 15 to provide a minimum of 500 feet of spacing between the existing intersection of South Street (County Road 16) and I-5 southbound ramps and the future intersection of County Road HH and County Road 16 (KD Anderson and Associates, 2009). Providing adequate spacing between these two intersections would prevent queues from one intersection interfering with operation of the other intersection.

The alignment of County Road HH is off-set at the intersection with County Road 14. A distance of about 100 feet currently exists at the intersection. As County Road HH would function as a north-south collector, elimination of the off-set at the intersection is recommended to improve the capacity of the intersection and the roadway (KD Anderson and Associates, 2009). This would require right-of-way acquisition and would affect existing structures. Land at one of the corners of the intersection would need to be acquired to align the roadway at the County Road 14 intersections.

The off-set alignment of County Road HH at County Road 14 would reduce the capacity of County Road HH and impair the ability of County Road HH to function as a collector roadway. Locating the intersection of County Road HH and County Road 16 less than 500 feet away from the intersection of South Street (County Road 16) and the I-5 southbound ramps would result in a potential interference between these two intersections.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed City of Orland General Plan contains no policies or programs that would assist in reducing potential cumulative impacts to County Road HH specifically.

In order to reduce this impact to a less than significant level, realigning County Road HH and County Road 14 would be required as well as locating the intersection of County Road HH and County Road 16 a minimum of 500 feet away from the intersection of South Street (County Road 16) and I-5 southbound ramps. As noted above, mitigation measure **MM 4.13.6** states that the City shall participate in regional roadway facility improvement programs established by Glenn County and/or Caltrans in order to address its fair-share of traffic impacts. Until such time that these improvements are programmed and funded, their implementation cannot be ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

Mitigation Measures

None available.

County Road 20

Impact 4.13.9 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional roadway capacity on County Road 20. This is considered **cumulatively considerable**.

Currently, access to I-5 in the Orland Planning Area is limited to two interchanges: at SR 32 and at South Street. An analysis of traffic operations at these two interchanges is discussed in Section 4.13, Transportation and Circulation. The analysis indicates these two interchanges, with recommended improvements, would operate at acceptable levels through the 20-year proposed General Plan planning period.

The occurrence of buildout of the City Land Use Diagram in the long term future will result in development along the southern portion of the Orland Planning Area which would lead to an increase in demand for access to I-5. The level of this demand has not been quantitatively analyzed. However, because of the current limited access to I-5 it is possible that General Plan buildout would result in the need for an additional I-5 interchange.

When freeway interchanges are located too close to one another, merging, diverging, and weaving movements at one interchange interfere with vehicle movements at the next interchange. In urbanized areas, freeway interchanges should be located at least one mile apart to avoid this interference. County Road 18 is one-half mile south of the existing I-5 interchange at South Street. Therefore, an additional I-5 interchange should not be constructed at County Road 18.

County Road 20 is located one mile south of the existing I-5 interchange at South Street. Because of its location in the southern portion of the Planning Area, locating an interchange at the County Road 20 crossing of I-5 would be logical. It is important to note, however, additional quantitative analysis would be needed in the future to determine the need for the additional interchange.

Proposed General Plan Policies and Programs that Mitigate Potential Impacts

The proposed City of Orland General Plan contains no policies or programs that would assist in reducing potential cumulative impacts to County Road 20 specifically.

To reduce this impact to a less than significant level, the City should reserve right-of-way along the County Road 20 corridor as land use development occurs in the corridor. The right-of-way should be wide enough for a four-lane roadway and should include enough right-of-way for an interchange at I-5. In the future, as more is known about the size and nature of development in the corridor, quantitative analysis should be conducted to identify the specific improvements that should be implemented. As noted above, mitigation measure **MM 4.13.6** states that the City shall participate in regional roadway facility improvement programs established by Glenn County and/or Caltrans in order to address its fair-share of traffic impacts. Until such time that these actions are programmed and funded their implementation cannot be ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

Mitigation Measures

None available.

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6.0 PROJECT ALTERNATIVES

6.1 INTRODUCTION

The purpose of this alternatives analysis is to describe a range of reasonable alternatives to the proposed City of Orland General Plan. This analysis evaluates alternatives that would obtain most of the basic objectives of the project, and the comparative merits of those alternatives (State CEQA Guidelines, Section 15126.6[a]). In accordance with State CEQA Guidelines, an EIR does not need to consider every conceivable alternative to a project, nor is it required to consider alternatives that are clearly infeasible. State CEQA Guidelines Section 15126.6(b) states that an alternatives analysis shall focus on those alternatives that are capable of avoiding or substantially lessening any significant effects of the project, even if they impede to some degree the attainment of the project objectives or would be more costly.

CEQA requires an EIR to identify project alternatives and to indicate the manner in which a project's significant effects may be mitigated or avoided, but does not mandate that the EIR itself contain an analysis of the feasibility of the various project alternatives or mitigation measures that it identifies. (Pub. Resources Code, Sections 21002.1, subd. (a); 21100, subd. (b)(4); *Sierra Club v. County of Napa* (2004) 121 Cal.App.4th 1490, 1503, citing *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656, 689-690.) As the lead agency, the City of Orland bears the responsibility for the decisions that must be made before a project can go forward, including determinations of feasibility and whether the benefits of a project outweigh the significant effects the project will have on the environment. (Pub. Resources Code Sections 21002.1, subds. (b) & (c), 21081.) In addition, CEQA specifically provides that in making these determinations, the City shall base its findings on substantial evidence in the record, a provision reflecting an understanding that the City Council will not limit its review to matters set forth in the EIR, but will base its decision on evidence found anywhere in the record. (*Sierra Club v. County of Napa*, 121 Cal.App.4th at p. 1503; citing Pub. Resources Code, Section 21081.5.)

According to the State CEQA Guidelines, an EIR need only examine in detail those alternatives that could feasibly meet most of the basic objectives of the project. When addressing feasibility, the State CEQA Guidelines Section 15126.6 states that "among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, jurisdictional boundaries, and whether the applicant can reasonably acquire, control or otherwise have access to alternative sites." CEQA Guidelines also specify that the alternatives discussion should not be remote or speculative; however, they need not be presented in the same level of detail as the assessment of the proposed project.

CEQA Guidelines indicate that several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include: (1) the nature of the significant impacts of the proposed project; (2) ability of alternatives to avoid or lessen the significant impacts associated with the project; (3) the ability of the alternatives to meet the objectives of the project; and (4) the feasibility of the alternatives. These factors would be unique for each project.

The significant environmental impacts of the project that the alternatives will seek to eliminate or reduce were determined and based upon the findings contained within each technical section evaluated in Sections 4.1 through 4.13 as well as Greenhouse Gases and Climate Change discussed in Section 5.0 of this DEIR.

AESTHETICS

- Alteration of the existing visual character (Impact 4.1.1).

AGRICULTURAL RESOURCES

- Loss of agricultural land under project and cumulative conditions (Impact 4.2.1 and Impact 4.2.4).

- Changes in existing land uses resulting in conversion of agricultural land (Impact 4.2.2).

AIR QUALITY

- Contribution to air quality impacts (construction, operational and toxic air contaminants) under project and cumulative conditions (Impacts 4.3.2, Impact 4.3.3, Impact 4.3.4, and Impact 4.3.6).

BIOLOGICAL RESOURCES

- Result in impacts to Special-Status plant and wildlife species (Impact 4.4.1).
- Result in impacts to sensitive natural communities (Impact 4.4.2).
- Result in impacts to Waters of the U.S., including wetlands (Impact 4.4.3).
- Effects on wildlife movement corridors (Impact 4.4.4).
- Cumulative biological resources (Impact 4.4.6).

CULTURAL RESOURCES

- Potential destruction or damage to known and undiscovered prehistoric resources, historic resources, and human remains under project and cumulative conditions (Impact 4.5.1, and Impact 4.5.3).

- Result in impacts to paleontological resources under project and cumulative conditions (Impact 4.5.2, and Impact 4.5.4).

GEOLOGY, SEISMICITY, SOILS, AND HAZARDOUS MATERIALS

- Result in the placement of structures and development in areas of seismic sensitivity (Impact 4.6.1).
- Potential increase of erosion and loss of topsoil (Impact 4.6.2).
- Potential development on unstable soils (Impact 4.6.3).
- Result in the release of hazardous materials (Impact 4.6.6).

HYDROLOGY AND WATER QUALITY

- Result in surface water quality impacts and cumulative water quality impacts (Impact 4.7.1, Impact 4.7.5).

- Result in groundwater supply impacts and groundwater quality impacts (Impact 4.7.2, Impact 4.7.3).

- Result in drainage and flooding impacts (Impact 4.7.4).

NOISE

- Result in noise-related impacts to noise-sensitive land uses (Impact 4.9.3)
- Result in significant increases in traffic noise levels at existing noise-sensitive areas within Orland (Impact 4.9.4)
- Result in significant increases in traffic noise levels at existing noise-sensitive areas within Orland (Impact 4.9.6)

POPULATION AND HOUSING

- Result in the increase of population and housing (Impact 4.10.1, 4.10.3).

COMMUNITY SERVICES

- Result in fire protection and emergency medical services impacts under project and cumulative conditions (Impact 4.11.1.1, Impact 4.11.1.3).
- Result in police protection services under project and cumulative conditions (Impact 4.11.2.1, Impact 4.11.2.2).
- Result in impacts public school facilities under project and cumulative conditions (Impact 4.11.3.1, Impact 4.11.3.2)
- Result in increased demand on existing parklands and recreation facilities under project and cumulative conditions (Impact 4.11.4.1, Impact 4.11.4.2)

PUBLIC SERVICES AND UTILITIES

- Result in the need for additional treatment capacity, storage capacity, and other conveyance facilities under project and cumulative conditions (Impact 4.12.1.1, Impact 4.12.1.2, Impact 4.12.1.3).
- Substantially increase wastewater flows and require additional infrastructure (Impact 4.12.2.1, Impact 4.12.2.2)
- Increase storm water runoff rates generated within and downstream of the proposed Planning Area and require additional infrastructure under project and cumulative conditions (Impact 4.12.3.1, Impact 4.12.3.2).
- Result in an increase in solid waste generation and the demand for related services under project and cumulative conditions (Impact 4.12.4.1, Impact 4.12.4.2).
- Substantially increase demand for electrical, natural gas, telephone and related infrastructure under project and cumulative conditions (Impact 4.12.5.1, Impact 4.12.5.2).

TRANSPORTATION AND CIRCULATION

- Result in increased traffic volumes on local intersection (Impact 4.13.1)

- Result in increase traffic volumes on local roadways (Impact 4.13.2)
- Result in increased traffic volumes on State Route (SR) 32 through the year 2028 and beyond the General Plan 20-year planning horizon (Impact 4.13.6)
- Result in increase demand for additional east-west roadway capacity (Impact 4.13.7)
- Result in increase demand for additional capacity on County Road HH (Impact 4.13.8)
- Result in increase demand for additional capacity on County Road 20 (Impact 4.13.9)

GREENHOUSE GASES AND CLIMATE CHANGE

- Result in inconsistencies with greenhouse gas reduction numbers (Impact 5.0.1).
- The impacts of global climate change would cumulatively result in the potential impacts to the City (Impact 5.0.2).

6.2 PROJECT ALTERNATIVES

PROJECT ALTERNATIVES EVALUATED

Based on the environmental analysis in Sections 4.1 through 4.13 of this DEIR, the project's alternatives were developed to provide decision-makers with a reasonable range of alternatives with which to compare to the proposed project. The following alternative scenarios were selected for evaluation in this analysis. This analysis utilizes the technical analysis provided in Sections 4.1 through 4.13 as well as input from the technical consultants (e.g., KD Anderson & Associates – traffic consultants) on each alternative's comparison to the proposed General Plan.

In accordance with the provisions of CEQA Guidelines Section 15126.6, the following alternatives are evaluated at a qualitative level of detail:

- No Project Alternative – This alternative would maintain the General Plan approved in 2003.
- Secondary Sphere of Influence Alternative – This alternative would reduce the General Plan Planning Area to be more consistent with the Secondary Sphere of Influence boundary
- County General Plan Alternative – This alternative will reflect land uses identified in the Glenn County General Plan for the area surrounding the City of Orland.

Alternative 1 - No Project Alternative

Characteristics

Under Alternative 1, the proposed City of Orland General Plan and its associated Land Use Diagram would not be adopted. The existing Orland General Plan policy document and Land Use Diagram would remain in effect. The City would utilize its existing zoning and other regulations regarding development within the City's jurisdiction. Infrastructure would be installed under existing plans, if applicable. Existing General Plan policies and programs would continue to be in effect.

Table 6.0-1 illustrates Alternative 1 land uses by acreage within the existing Planning Area. Alternative 1 would designate approximately 2,407.6 acres into various residential land uses. Approximately 440 acres will be reserved for open space resource conservation.

TABLE 6.0-1
ALTERNATIVE 1 – LAND USES

Land Use Designation	Total Acres
Commercial	247.3
Heavy Industrial	36.6
Light Industrial/Commercial	295.7
Open Space/Resources Conservation	440.4
Public Facility	183.7
Residential Estates	785.7
High Density Residential	65.9
Medium Density Residential	54.7
Low Density Residential	1,501.3
Other	484.2
Total	**4,095.5**

Table 6.0-2 summarizes the potential residential development under Alternative 1. Buildout under Alternative 1 would result in approximately 12,113 residential dwelling units and an associated population of 35,082, as well as development of commercial, industrial, and public uses.

TABLE 6.0-2
ALTERNATIVE 1 – POTENTIAL BUILDOUT HOUSING AND POPULATION

Land Use Designation	Acres	Housing Units	Population
Residential Land Uses			
Residential Estates	785.7	1,571	4,714
High Density Residential	65.9	988	1,977
Medium Density Residential	54.7	547	1,368
Low Density Residential	1,501.3	9,007	27,023
Totals	**2,407.6**	**12,113**	**35,082**

This analysis of Alternative 1 is consistent with the requirements for analysis of a No Project Alternative, as set forth in CEQA Guidelines Section 15126.6(e). More specifically, CEQA Guidelines Section 15126.6(e)(3)(A) states that, when the project under evaluation is the revision of an existing land use or regulatory plan, the No Project Alternative will be the continuation of the existing plan.

Comparative Impacts

Aesthetics

Alteration of the existing visual character (Impact 4.1.1)

Implementation of the proposed General Plan would change the visual character of the Planning Area. The existing visual character of the City is one with a small town feel divided into several distinct areas, as indicated by its land use pattern. The implementation of the proposed General Plan would result in alterations to existing landscape characteristics of the City. Most notably, the existing urban area would expand into areas that are currently undeveloped or agricultural lands. This impact was identified as a less than significant impact under project conditions.

Alternative 1 would reduce visual impacts by retaining less intensive land uses that are more consistent with the existing rural/agricultural landscape characteristics. However, urban development allowed under this Alternative would still result in potential impacts to the visual character of the City by allowing urban development in rural areas. However, because of the reduced development area, when compared to the proposed project, this Alternative would have a reduced impact on visual character. Therefore, Alternative 1 would be an environmentally superior alternative.

Agricultural Resources

Loss of agricultural land under project and cumulative conditions (Impact 4.2.1, Impact 4.2.2, Impact 4.2.4)

As noted in Section 4.2, Agricultural Resources, land use designation changes in the proposed General Plan results in a net decrease of substantial agriculturally designated land acreages. Most of the agricultural lands within the proposed Planning Area are actually outside the City limits and located along the edges of the City, to the east, south, west and north. This was identified as a significant and unavoidable impact under project and cumulative conditions.

Alternative 1 would still result in the loss of important farmlands within the City limits. However, implementation of Alternative 1 would not expand the City's Planning Area to the extent planned by the proposed General Plan. This lack of jurisdictional expansion would result in fewer agricultural lands operating under the regulatory climate of the City, which possesses no agricultural land designations. These agricultural lands would remain under the jurisdiction of Glenn County. Therefore, Alternative 1 would be an environmentally superior alternative.

Changes in existing land uses resulting in conversion of agricultural land (Impact 4.2.2)

Implementation of the proposed General Plan would place urbanized land uses adjacent to, and would replace, existing agricultural uses. It is anticipated that as the City's growing population increases the need for more residential, commercial and industrial development, agriculture/urban interface conflicts may occur.

Implementation of Alternative 1 would result in similar, though reduced land use conflicts between urban/agricultural uses as implementation of Alternative 1 would not expand the City's Planning Area as planned by the proposed General Plan. This lack of jurisdictional expansion would result in fewer agricultural lands operating under the regulatory climate of the City. Therefore, Alternative 1 would be an environmentally superior alternative.

Air Quality

Contribution to air quality impacts (construction, operational and toxic air contaminants) under project and cumulative conditions (Impacts 4.3.2, Impact 4.3.3, Impact 4.3.4, and Impact 4.3.6)

Implementation of the proposed General Plan and the resulting development would increase the potential for additional mobile and stationary sources emissions, short-term construction emissions, and toxic air contaminants which would adversely affect regional air quality. All of the air quality impacts listed above result in significant and unavoidable impacts.

While Alternative 1 would result in less potential for development and population growth, this alternative would still result in impacts to air quality. Implementation of Alternative 1 would result in reduced air emissions, though these emission levels would still be considered significant. Development under this Alternative would accommodate a reduced amount of growth (12,114 residential units and 35,077 people at buildout compared with 16,419 residential units and 46,513 people at buildout under the proposed General Plan). Therefore, Alternative 1 would be considered an environmentally superior alternative.

Biological Resources

Result in project and cumulative impacts to Special- Status Species, sensitive natural communities including jurisdictional waters, and effects on Wildlife Movement Corridors (Impact 4.4.1, Impact 4.4.2, Impact 4.4.3, Impact 4.4.4, and Impact 4.4.6)

Implementation of the proposed General Plan could result in impacts to special-status plant and animal species, sensitive natural communities, jurisdictional waters including wetlands, and wildlife movement corridors. General Plan policies and programs along with mitigation measures identified under these impacts reduce the impacts to less than significant levels.

Alternative 1 would likely result in reduced impacts by retaining the current Planning Area boundary as opposed to expanding it as proposed by the General Plan. In other words, under Alternative 1 the Planning Area would not be extended and there would be no land use changes outside the current Planning Area boundary. Likewise, there would be no land use changes within the current Planning Area. Approximately 2,289.1 acres identified for urban development in the proposed General Plan would not be developed under Alternative 1. Therefore, Alternative 1 would be considered an environmentally superior alternative.

Cultural Resources

Potential destruction or damage to known and undiscovered prehistoric resources, historic resources, and human remains under project and cumulative conditions (Impact 4.5.1 and Impact 4.5.3)

Adoption of the proposed City of Orland General Plan could result in the potential disturbance of prehistoric, historic and/or human remains. Implementation of the proposed General Plan policies, programs, along with mitigation measures identified in Section 4.5, Cultural Resources, Impact 4.5.1 would assist in reducing significant impacts to known cultural resources, as well as to any unknown cultural resources. Impacts to historic resources and paleontological resources would be reduced to a less than significant level.

Implementation of Alternative 1 would result in a reduced potential for impacts to undiscovered cultural resources by retaining less intensive land uses. As ultimate buildout of Alternative 1 would result in less development when compared to the proposed General Plan, Alternative 1 is considered to be an environmentally superior alternative.

Result in impacts to paleontological resources under project and cumulative conditions (Impact 4.5.2 and Impact 4.5.4)

Adoption of the proposed City of Orland General Plan could result in the potential disturbance of paleontological resources. Implementation of the proposed General Plan policies, programs, along with mitigation measures identified in Section 4.5, Impact 4.5.2 would assist in reducing significant impacts to known paleontological resources, as well as to any unknown cultural resources. Impacts to historic resources and paleontological resources would be reduced to a less than significant level.

Implementation of Alternative 1 would result in a reduced potential for impacts to undiscovered paleontological resources by retaining less intensive land uses. As ultimate buildout of Alternative 1 would result in less development when compared to the proposed General Plan, Alternative 1 is considered to be an environmentally superior alternative.

Geology, Seismicity, Soils, and Hazardous Materials

Result in the placement of structures and development in areas of seismic sensitivity (Impact 4.6.1)

Implementation of the General Plan may result in the placement of structures and development in areas of seismic sensitivity. The proposed City of Orland General Plan policies and programs as well as mitigation measures identified in Section 4.5, Impact 4.5.2 require adherence to the California Building Code and in some cases a geotechnical investigation prior to site development. Such actions reduce the effects resulting from earthquakes, ground shaking, liquefaction, and other secondary hazards within the proposed Orland General Plan Planning Area to a minimum. This impact is considered to be less than significant.

Alternative 1 would result in similar impacts to the proposed project by allowing the placement of structures and development in areas of seismic sensitivity.

Potential increase of erosion and loss of topsoil (Impact 4.6.2)

Implementation of the proposed General Plan may result in substantial construction and site preparation activities. These activities increase soil erosion, wind and water erosion, and siltation of local drainages during construction, excavation and grading activities. Compliance with adopted erosion control standards and National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit and Storm Water Pollution Prevention Plan (SWPPP) requirements, as well as proposed General Plan policies and programs would result in less than significant erosion impacts.

Alternative 1 may also result in construction and site preparation activities, however not to the level of the proposed project. This is a result of Alternative 1's reduced availability of land for residential development (approximately 2,289.1 acres) than the proposed project. Therefore, Alternative 1 would be an environmentally alternative.

Potential development on unstable soils (Impact 4.6.3)

Implementation of the proposed General Plan may allow for development in areas with unstable soils. Compliance with adopted California Building Code requirements and mitigation measure **MM 4.6.1** which requires a geotechnical investigation prior to site development, as well as implementation of the proposed General Plan policies and programs would ensure that expansive or unstable soils related impacts are reduced to a less than significant level.

Implementation of Alternative 1 would result in similar impacts as the proposed General Plan. Alternative 1 would be subject to City standards regarding development on unstable soils identified in the California Building Code and the adopted General Plan policies.

Result in the release of hazardous materials (Impact 4.6.6)

Implementation of the General Plan would allow for the potential to result in the release of hazardous materials within the City of Orland Planning Area. The proposed City of Orland General Plan policies and associated programs, as well as adherence to all federal, state, and local regulations regarding hazardous materials, and mitigation measure **MM 4.6.6** would reduce the environmental impacts associated with the release of hazardous materials to less than significant.

Alternative 1 contains identical policies and programs regarding hazardous materials when compared with the proposed General Plan. However, as the use of hazardous materials is regulated by federal, state, and local agencies, the need for numerous policies in the General Plan is not required. Because certain agencies have been assigned the task of regulating hazardous materials by the federal and state government, inclusion of policies in a general plan would not necessarily increase the protection of individuals from these potential hazards. However, as the proposed project includes identical policies and programs as Alternative 1 regarding hazardous materials, this alternative is considered to have similar hazardous material-related impacts than the proposed project.

Hydrology and Water Quality

Result in surface water quality impacts and cumulative water quality impacts (Impact 4.7.1, Impact 4.7.5)

Implementation of the proposed General Plan could result in an alteration of existing drainage, the discharge of polluted runoff, discharge that could cause harm to the biological integrity of waterways, adversely impact water quality standards, or otherwise substantially degrade surface water quality. Proposed General Plan policies and programs, as well as compliance with NPDES permit requirements would ensure that both construction-related and operational impacts to surface water resources in the proposed General Plan Planning Area would be less than significant under project and cumulative conditions.

Implementation of Alternative 1 has been determined in the 2003 General Plan to result in less than significant environmental effects. Alternative 1, the City's General Plan adopted in 2003, contains identical policies and programs regarding hydrology and water quality compared with the proposed General Plan with the exception that the proposed General Plan offers two more protective policies. These policies include language which will aid in water conservation efforts as well as sentiment control. While Alternative 1 would result in a reduced potential for water quality impacts given the extent of urban development would be reduced, the proposed

project offers a greater level of protection through its policies and programs which results in a better environmental alternative.

Result in groundwater supply and quality impacts and cumulative water quality impacts (Impact 4.7.2, Impact 4.7.3, Impact 4.7.5)

Implementation of the proposed General Plan and the resultant increase in development could result in the degradation of groundwater quality and supply resulting from future land uses. Proposed General Plan policies and programs would ensure that impacts to groundwater resources in the City of Orland area would be considered less than significant under project and cumulative conditions.

Implementation of Alternative 1 has been determined in the 2003 General Plan to not result in significant changes in the quantity or quality of groundwater supplies. Alternative 1, the City's General Plan adopted in 2003, contains identical policies and programs regarding hydrology and water quality compared with the proposed General Plan with the exception that the proposed General Plan offers two more protective policies. One of these policies in particular, Policy 5.6.C, explores the use of pervious concrete in development, which is a technology that could substantially increase water filtration into the soil and thus help to maintain the groundwater aquifer under Orland. While Alternative 1 would result in a reduced potential for groundwater quality impacts given the extent of urban development would be reduced, the proposed project offers a greater level of protection through its policies and programs which results in a better environmental alternative.

Result in drainage and flooding impacts (Impact 4.7.4)

Implementation of the proposed General Plan resultant increase in development would potentially increase impervious surfaces and alter drainage conditions and storm water runoff rates throughout Orland, which could result in substantial erosion or siltation on- or offsite. Proposed General Plan policies and programs would ensure that drainage and flood related impacts would be less than significant under project conditions.

Alternative 1 would also have potential drainage and flooding impacts as a result of development. While Alternative 1 would result in a reduced potential for drainage and flooding impacts given the extent of urban development would be reduced, the proposed project offers a greater level of protection through its policies and programs, specifically Policy 5.6.C. Therefore, the proposed project is a better environmental alternative.

Noise

Result in noise-related impacts to noise-sensitive land uses (Impact 4.9.3)

Implementation of the proposed General Plan would result in future development of noise-producing land uses near noise-sensitive land uses. The policies of the proposed General Plan Noise Element require that noise impacts be evaluated in the case of new noise-producing developments constructed near existing noise-sensitive land uses and appropriate noise mitigation measures must be included in the project design of such development. Because of this, the implementation of the proposed General Plan will result in a less than significant impact under project conditions.

Implementation of Alternative 1 would result in a reduced potential for impacts to noise-sensitive lands by retaining less intensive land uses. As ultimate buildout of Alternative 1 would result in less

development when compared to the proposed General Plan, Alternative 1 is considered to be an environmentally superior alternative.

Result in significant increase in traffic noise levels at existing noise-sensitive areas within Orland (Impact 4.9.4)

Implementation of the proposed General Plan would result in significant increases in traffic noise levels at existing noise-sensitive areas within Orland. It is infeasible to ensure that existing residential uses will not be exposed to future traffic noise levels exceeding the City's noise standards or significantly exceeding levels they are exposed to today. For example, it may not be possible to construct a noise barrier at an existing residence due to engineering constraints (utility easements or driveway openings), and building façade sound insulation would only benefit interior spaces, so outdoor activity areas may still be affected. Because of this, the implementation of the proposed General Plan will result in a significant and unavoidable impact under project conditions.

Implementation of Alternative 1 would result in a reduced potential for noise impacts as ultimate buildout of Alternative 1 would result in less development when compared to the proposed General Plan, Alternative 1 is considered to be an environmentally superior alternative.

Result in significant increases in noise levels within Orland (Impact 4.9.6)

Implementation of the proposed General Plan would result in significant increases in noise levels within Orland. It is infeasible to ensure that existing residential uses will not be exposed to future traffic noise levels exceeding the City's noise standards or significantly exceeding levels they are exposed to today. For example, it may not be possible to construct a noise barrier at an existing residence due to engineering constraints (utility easements or driveway openings), and building façade sound insulation would only benefit interior spaces, so outdoor activity areas may still be affected. Because of this, the implementation of the proposed General Plan will result in a significant and unavoidable impact under cumulative conditions.

Implementation of Alternative 1 would result in a reduced potential for impacts to noise-sensitive land uses by retaining less intensive land uses. As ultimate buildout of Alternative 1 would result in less development when compared to the proposed General Plan, Alternative 1 is considered to be an environmentally superior alternative.

Population and Housing

Result in the increase of population and housing (Impact 4.10.1, 4.10.3)

Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the area. Land use changes included in the proposed General Plan may result in a substantial increase the population to the area over existing conditions. The proposed General Plan does not contain any policies which would limit population growth. Because of this, the implementation of the proposed General Plan will result in a significant and unavoidable impact under project and cumulative conditions.

The impacts on future population growth and housing development may vary, depending on factors such as the housing market, job availability, type of housing built and economic conditions. Under Alternative 1, fewer housing units would be built than under the proposed project. The population projections in this analysis assume a constant relationship between population and housing stock, which likely will not occur. However, the lower number of housing

units under Alternative 1 would result in a reduction of impacts on the physical environment than the proposed project. Therefore, Alternative 1 is considered to be the environmentally superior alternative.

Community Services

Result in fire protection and emergency medical services impacts under project conditions (Impact 4.11.1.1, Impact 4.11.1.2)

Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the area. As the City is expected to expand outward in multiple directions, there is concern that the increased population resulting from the proposed General Plan could add strain to fire protection services in the area. At its present staffing levels, the Fire Department could not provide services to potential growth allowed under the proposed General Plan. However, it was determined that implementation of proposed General Plan policies and programs would ensure adequate fire protection services and facilities for City residents and properties resulting in a less than significant impact under project conditions and cumulative conditions.

Alternative 1, the City's General Plan adopted in 2003, contains identical policies and programs regarding fire protection services compared with the proposed General Plan with the exception that the proposed General Plan offers one more policy. Policy 4.3.B states that the City shall provide assistance as necessary to maintain an efficient and functional fire service operation. As Alternative 1 would result in a reduced potential for fire protection related impacts given the extent of urban development would be reduced, yet the proposed project offers an additional policy which offers City government resources to aid fire service operations, Alternative 1 is considered to have similar fire protection-related impacts than the proposed project.

Result in impacts to police protection services under project and cumulative conditions (Impact 4.11.2.1, Impact 4.11.2.2)

Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the area. As the City population is expected to expand, there is concern that the increased population resulting from the proposed General Plan could add strain to police protection services in the area. It was determined that implementation of proposed General Plan policies and programs would ensure adequate police protection services and facilities for City residents and properties resulting in a less than significant impact under project and cumulative conditions.

Alternative 1, the City's General Plan adopted in 2003, contains no policies and programs regarding police protection services. Conversely, the proposed General Plan offers several policies and programs. For instance, Safety Element Program 4.4.A.3 considers the needs of the Orland Police Department and will support those needs with budget revenues, grants, and impact fees. As part of the budget review process, Program 4.4.A.3 stipulates that the City shall review impact fee rates to ensure they adequately reflect a fair share of funding by development and other law enforcement service recipients. As the proposed project offers policies and programs which offer City government resources to aid law enforcement service operations and Alternative 1 does not, Alternative 1 is considered to have greater police protection-related impacts than the proposed project.

Result in impacts to public school facilities under project and cumulative conditions (Impact 4.11.3.1, Impact 4.11.3.2)

Implementation of the proposed General Plan would result in the addition of new residents, and a resultant increase in the number of students in the Orland Unified School District. The construction of these upgrades could cause significant environmental impacts. California Government Code Sections 65995 (h) and 65996 (b) provide full and complete school facilities mitigation. Section 65995(h) states that the payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code is deemed to be full and complete mitigation of the impacts for the planning, use, development, or the provision of adequate school facilities, and Section 65996 (b) states that the provisions of the Government Code provide full and complete school facilities mitigation. Furthermore, the Orland Unified School District would be required to conduct the appropriate environmental review prior to any significant expansion of school facilities or the development of new school facilities. Impacts to public school facilities in Orland would be reduced to a less than significant level.

While Alternative 1 would result in less potential for development and population growth, this alternative would still result in impacts to Orland's public school facilities. Implementation of Alternative 1 would result in reduced public school demand as development under this Alternative would accommodate a significantly reduced amount of growth (12,114 residential units and 35,077 people at buildout compared with 16,419 residential units and 46,513 people at buildout under the proposed General Plan). Therefore, Alternative 1 would be considered an environmentally superior alternative.

Result in increased demand on existing parklands and recreation facilities under project and cumulative conditions (Impact 4.11.4.1, Impact 4.11.4.2)

Expansion of the City's Planning Area and city limits under the proposed General Plan would result in a projected 2028 population of approximately 12,286 persons and increase of 4,933 persons over the existing population. The additional demand on existing parks and recreational facilities, particularly the City-managed facilities, would increase the need for maintenance and improvements. These improvements could have environmental impacts, although the exact impacts cannot be determined since the potential improvements are unknown at this time. However, given the developed character of the existing parks, these impacts are expected to be limited. It was determined that implementation of proposed General Plan policies and programs, along with mitigation measure **MM 4.11.4.1** would reduce the proposed General Plan's parks and recreation impacts to less than significant.

While Alternative 1 would result in less potential for development and population growth, this alternative would still result in the need for parkland and recreation facilities. Implementation of Alternative 1 would result in reduced physical impacts to the environment as development under this Alternative would accommodate a reduced amount of growth (12,114 residential units and 35,077 people at buildout compared with 16,513 residential units and 46,513 people at buildout under the proposed General Plan). Therefore, Alternative 1 would be considered an environmentally superior alternative.

Public Services and Utilities

Result in the need for additional water treatment capacity, storage capacity, and other conveyance facilities under project and cumulative conditions (Impact 4.12.1.1, Impact 4.12.1.2, Impact 4.12.1.3)

Implementation of the proposed General Plan would allow urban development in areas currently used for agriculture or are otherwise undeveloped. To serve the new development, water lines would need to be installed or extended. Additional wells and water treatment facilities would also be necessary. Additional water infrastructure also may be necessary to serve currently undeveloped areas within the City limits. These actions would result in a physical effect on the environment. The policies and programs in the proposed General Plan as well as mitigation measures **MM 4.12.1.1a** and **MM 4.12.1b** ensure that water supply needs are met in a timely, efficient, and logical manner. These General Plan policies, programs, and mitigation measures would reduce the proposed General Plan's water supply impacts to a less than significant level.

While Alternative 1 would result in less potential for development and population growth, this alternative would still result in the need for additional water treatment capacity, storage capacity, and other conveyance facilities. Implementation of Alternative 1 would result in reduced physical impacts to the environment as development under this Alternative would accommodate a reduced amount of growth (12,114 residential units and 35,077 people at buildout compared with 16,513 residential units and 46,513 people at buildout under the proposed General Plan). Therefore, Alternative 1 would be considered an environmentally superior alternative.

Substantially increase wastewater flows and require additional infrastructure (Impact 4.12.2.1, Impact 4.12.2.2)

Implementation of the proposed General Plan would substantially increase wastewater flows and require additional infrastructure and may require additional treatment capacity to accommodate anticipated demands that would result in a physical effect on the environment. Proposed General Plan policies and programs along with mitigation measures identified under these impacts reduce the impacts to less than significant levels under project conditions. General Plan impacts to wastewater conveyance and treatment under cumulative conditions are considered to be significant and unavoidable.

Alternative 1 would also increase wastewater flows and may require additional treatment capacity. However, Alternative 1 would result in less population growth. Therefore the demand for treatment facilities is not as great as the proposed project. As a result, Alternative 1 is the superior environmental alternative.

Increase storm water runoff rates generated within and downstream of the proposed Planning Area and require additional infrastructure under project and cumulative conditions (Impact 4.12.3.1, Impact 4.12.3.2)

Implementation of the proposed General Plan would increase stormwater runoff rates generated within and downstream of the proposed Planning Area when compared with existing conditions and require additional infrastructure to accommodate anticipated demands that would result in a physical effect on the environment. Proposed General Plan policies and

programs identified under these impacts reduce the impacts to less than significant levels under project and cumulative conditions.

Alternative 1 would also increase stormwater flows and may require additional infrastructure. However, Alternative 1 would result in less population growth. Therefore the demand for stormwater facilities is not as great as the proposed project. As a result, Alternative 1 is the superior environmental alternative.

Result in an increase in solid waste generation and the demand for related services under project and cumulative conditions (Impact 4.12.4.1. Impact 4.12.4.2)

Implementation of the proposed General Plan would substantially increase solid waste disposal demand and require additional landfill capacity to accommodate anticipated demands that would result in a physical effect on the environment. Proposed General Plan policies and programs along with mitigation measures identified under these impacts reduce the impacts to less than significant levels under project and cumulative conditions.

Alternative 1 would also increase solid waste disposal demand and may require additional landfill capacity. However, Alternative 1 would result in less population growth. Therefore the demand for disposal facilities is not as great as the proposed project. As a result, Alternative 1 is the superior environmental alternative.

Substantially increase demand for electrical, natural gas, telephone and related infrastructure under project and cumulative conditions (Impact 4.12.5.1, Impact 4.12.5.2).

Implementation of the proposed General Plan would increase demand for electrical, natural gas, telephone and related infrastructure. Proposed General Plan Land Use Element Policy 2.2.B and associated Program 2.2.B.1 will assist in reducing the proposed General Plan's electrical, natural gas, telephone, and cable related impacts to a level that is less than significant.

Alternative 1 would also increase the demand for electrical, natural gas, telephone and related infrastructure. However, Alternative 1 would result in less population growth. Therefore the demand for these facilities is not as great as the proposed project. As a result, Alternative 1 is the superior environmental alternative.

Transportation and Circulation

Result in increased traffic volumes on local intersections (Impact 4.13.1)

Implementation of the proposed General Plan would result in increased traffic volumes and a decrease in LOS on area intersections. Nine of the 14 study intersections during both the a.m. peak hour and the p.m. peak hour would operate at an acceptable LOS under 2028 General Plan conditions. Implementation of mitigation measure **MM 4.13.1** would reduce impacts to the remaining five study intersection to a level that is less than significant.

While Alternative 1 would result in less potential for development and population growth, this alternative would still result in impacts to local intersections. Implementation of Alternative 1 would result in reduced traffic. Development under this Alternative would accommodate a reduced amount of growth, thus resulting in less traffic (12,114 residential units and 35,077 people at buildout compared with 16,513 residential units and 46,513 people at buildout under the proposed General Plan). Therefore, Alternative 1 would be considered an environmentally superior alternative.

Result in increased traffic volumes on local roadways (Impact 4.13.2)

Implementation of the proposed General Plan would result in increased traffic volumes and a decrease in LOS on area roadways. Implementation of intersection mitigation measures described under mitigation measure **MM 4.13.1** would result in acceptable traffic operating conditions at local roadways. Because mitigation measure **MM 4.13.1** would result in acceptable traffic operating conditions, the impact on roadway segment LOS would be reduced to a less than significant level.

While Alternative 1 would result in less potential for development and population growth, this alternative would still result in impacts to local roadways, however, implementation of Alternative 1 would result in reduced traffic. Development under this Alternative would accommodate a reduced amount of growth, thus resulting in less traffic. Therefore, Alternative 1 would be considered an environmentally superior alternative.

Result in increased traffic volumes on State Route (SR) 32 through the year 2028 and beyond the General Plan 20-year planning horizon (Impact 4.13.6)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase traffic volumes on SR 32 through the year 2028 and beyond the General Plan 20-year planning horizon. Implementing improvements recommended by Caltrans in the *Transportation Concept Report State Route 32* would reduce this impact to less than cumulatively considerable.

Alternative 1 would result in less potential for development and population growth. While this alternative would still result in impacts to SR 32, implementation of Alternative 1 would result in a reduced amount of traffic. Development under this Alternative would accommodate a reduced amount of growth, thus resulting in less traffic. Therefore, Alternative 1 would be considered an environmentally superior alternative.

Result in increase demand for additional east-west roadway capacity (Impact 4.13.7)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional east-west roadway capacity. Until such time that the right-of-way along the County Road 18 corridor is able to be reserved by the City and the recommended quantitative analysis and subsequent improvements are programmed and funded, their implementation cannot be ensured. This impact is considered cumulatively considerable.

Alternative 1 would result in less potential for development and population growth. While this alternative would still result in impacts to east-west roadway capacity, implementation of Alternative 1 would result in a reduced amount of traffic. Development under this Alternative would accommodate a reduced amount of growth, thus resulting in less traffic. Therefore, Alternative 1 would be considered an environmentally superior alternative.

Result in increase demand for additional capacity on County Road HH (Impact 4.13.8)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road HH. Until such time that the recommended improvements are programmed and funded, their implementation cannot be ensured. Therefore this impact would be considered considerable under cumulative conditions.

Alternative 1 would result in less potential for development and population growth. While this alternative would still result in impacts to County Road HH capacity, implementation of Alternative 1 would result in a reduced amount of traffic. Development under this Alternative would accommodate a reduced amount of growth, thus resulting in less traffic. Therefore, Alternative 1 would be considered an environmentally superior alternative.

Result in increase demand for additional capacity on County Road 20 (Impact 4.13.9)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road 20. Until such time that the recommended improvements are programmed and funded, their implementation cannot be ensured. Therefore this impact would be considered considerable under cumulative conditions.

Alternative 1 would result in less potential for development and population growth. While this alternative would still result in impacts to County Road 20 capacity, implementation of Alternative 1 would result in a reduced amount of traffic. Development under this Alternative would accommodate a reduced amount of growth, thus resulting in less traffic. Therefore, Alternative 1 would be considered an environmentally superior alternative.

Greenhouse Gases and Climate Change

Result in inconsistencies with greenhouse gas reduction numbers (Impact 5.0.1)

Subsequent land use activities associated with implementation of the proposed General Plan would result in the cumulative increase of greenhouse gases including CO_2 emitted into the atmosphere. However, the proposed General Plan would implement a number of policies that would complement and be consistent with the early emission reduction strategies contained in the California Climate Action Team's (CAT) Report to the Governor and Executive Order S-3-05. Implementation of the proposed General Plan would be consistent with state measures to reduce greenhouse gas emissions.

Alternative 1 would result in less potential for development and population growth and therefore would still result in impacts to the global climate. Implementation of Alternative 1 would result in reduced GHG emissions, though these emission levels would still be significant. Development under this Alternative would accommodate a reduced amount of growth (12,114 residential units and 35,077 people at buildout compared with 16,513 residential units and 46,513 people at buildout under the proposed General Plan). The proposed General Plan includes several new policies in the Open Space, Conservation, Public Facilities, and Circulation Elements. These policies include language which will aid in reducing the impacts of Greenhouse Gas Emissions. While Alternative 1 would result in reduced development and population growth, the proposed project offers a greater level of protection of greenhouse gas reduction through its policies and programs. Therefore, the proposed project is an environmentally superior alternative.

Result in the potential impacts to the City by the environmental effects of global climate change (Impact 5.0.2)

Implementation of the proposed General Plan could substantially increase emissions of GHGs over existing conditions that could result in environmental effects to the City. Based on consideration of the recent regional and local climate change studies, and based that the City's groundwater source is anticipated to largely remain intact, it is reasonably expected that the impacts of global climate change on the City would be less than cumulatively considerable.

While Alternative 1 would result in less potential for development and population growth, this alternative would still result in impacts to the global climate. Implementation of Alternative 1 would result in reduced GHG emissions, though these emission levels would still be considered significant. Development under this Alternative would accommodate a reduced amount of growth (12,114 residential units and 35,077 people at buildout compared with 16,513 residential units and 46,513 people at buildout under the proposed General Plan). The proposed General Plan includes several new policies in the Open Space, Conservation, Public Facilities, and Circulation Elements. These policies include language which will aid in reducing the impacts of Climate Change. While Alternative 1 would result in reduced development and population growth, the proposed project offers a greater level of protection through its policies and programs. Therefore, the proposed project is a better environmental alternative.

Alternative 2 – Secondary Sphere of Influence Alternative

Characteristics

Under Alternative 2, the proposed General Plan Planning Area would be reduced to be more consistent with the Secondary Sphere of Influence boundary. This change would move the southern Planning Area boundary to Road 20, effectively removing approximately 500 acres of the Residential Estate designation from the Planning Area (a potential of 1,000 residential units and 3,000 people). These lands would maintain Glenn County land use designations and remain under County jurisdiction. The northern, eastern and western boundaries would remain the same as the proposed project. This Alternative would also include the area surrounding the Haigh Field Airport similar to the proposed project. **Table 6.0-3** illustrates Alternative 2 land uses by acreage within the existing Planning Area.

TABLE 6.0-3
ALTERNATIVE 2 – LAND USES

Land Use Designation	Total Acres
Commercial	276.8
Heavy Industrial	208.7
Light Industrial/Commercial	695.4
Open Space/Resources Conservation	668.8
Public Facility	583.7
Residential Estates	1,181.2
High Density Residential	106.7
Medium Density Residential	49.9
Low Density Residential	1,650.4
Mixed Use	22.9
Other	668.5
Total	**6,113**

Table 6.0-4 summarizes the potential residential development under Alternative 2. Buildout under Alternative 2 would result in approximately 15,210 residential dwelling units and an associated population of 42,940, as well as development of commercial, industrial, and public uses within

the General Plan Planning Area. The estimated population is based upon the analysis used in **Table 4.0-1** of Section 4.0 of this Draft EIR.

As stated previously, these 500 acres south of Road 20 would maintain Glenn County land use designations (Rural Residential, Service Commercial, and Multi-Family Residential) and remain under County jurisdiction. Potential development that could result on this acreage under the County land use designations include 78 rural residential units, 1,230 multi-family residential units, and 21 acres (914,760 square feet) of developable commercial space.

TABLE 6.0-4
ALTERNATIVE 2 – POTENTIAL BUILDOUT HOUSING AND POPULATION

Land Use Designation	Acres	Housing Units	Population
Residential Land Uses			
Residential Estates	1,181.2	2,362	7,090
High Density Residential	106.7	2,447	4,027
Medium Density Residential	49.9	499	1,248
Low Density Residential	1,650.4	9,902	29,705
Totals	**3,488.2**	**15,210**	**42,940**

Comparative Impacts

Aesthetics

Alteration of the existing visual character (Impact 4.1.1)

Implementation of the proposed General Plan would change the visual character of the City. The existing visual character of the City is one with a small town feel divided into several distinct areas, as indicated by its land use pattern. Implementation of the proposed General Plan would change the visual character of the Planning Area through intensification of urban uses within the existing City limits and introduction of urban uses within the City Planning Area. This impact was identified as a less than significant impact under project conditions.

Implementation of Alternative 2 would retain existing Glenn County General Plan land use designations and policy provisions for the approximately 500 acres south of Road 20 identified previously. However, urban development allowed under this Alternative would still result in potential impacts to the visual character of the City by allowing urban development in rural areas. Because of the reduced development area, when compared to the proposed project this Alternative would have a reduced less impact to visual character. Therefore, Alternative 2 is considered to be an environmentally superior alternative.

Agricultural Resources

Loss of agricultural land under project and cumulative conditions (Impact 4.2.1 and Impact 4.2.4)

As noted in Section 4.2, Agricultural Resources, land use designation changes in the proposed General Plan results in a net decrease of substantial agriculturally designated land acreages. Most of the agricultural lands within the proposed Planning Area are actually outside the City

limits and located along the edges of the City, to the east, south, west and north. This was identified as a significant and unavoidable impact under project and cumulative conditions.

Alternative 2 would still result in some loss of important farmlands within the City limits. However, implementation of Alternative 2 would not expand the City's southern Planning Area boundary beyond Road 20 as planned by the proposed General Plan. Important farmland areas south of Road 20 would not be developed under the jurisdiction of Orland under this Alternative. This alternative would reduce important farmland impacts as compared to the proposed General Plan.

Changes in existing land uses resulting in conversion of agricultural land (Impact 4.2.2)

Implementation of the proposed General Plan would place urbanized land uses adjacent to, and would replace, existing agricultural uses. It is anticipated that as the City's growing population increases the need for more residential, commercial and industrial development, agriculture/urban interface conflicts may occur. This was identified as a significant and unavoidable impact.

Implementation of Alternative 2 would result in similar, though reduced land use conflicts between urban/agricultural uses as implementation of Alternative 2 would not expand the City's Planning Area to include approximately 500 acres south of Road 20 as planned by the proposed General Plan. This lack of jurisdictional expansion would result in fewer agricultural lands operating under the regulatory climate of the City. Therefore, Alternative 2 would reduce farmland impacts as compared to the proposed General Plan.

Air Quality

Contribution to air quality impacts (construction, operational and toxic air contaminants) under project and cumulative conditions (Impacts 4.3.2, Impact 4.3.3, Impact 4.3.4, and Impact 4.3.6)

Implementation of the proposed General Plan and the resulting development would increase the potential for additional mobile and stationary sources emissions, short-term construction emissions, and toxic air contaminants which would adversely affect regional air quality. All of the air quality impacts listed above result in significant and unavoidable impacts.

Alternative 2 would have a similar potential to include land uses that have potential to produce additional mobile and stationary sources emissions, short-term construction emissions, and toxic air contaminants. This impact for Alternative 2 could be mitigated similar to the proposed General Plan through the application of proposed policies, programs, and mitigation identified in Section 4.3, Air Quality. Alternative 2 would result in less potential for development and population growth; therefore, this alternative would result in reduced impacts to air quality.

Biological Resources

Result in project and cumulative impacts to Special- Status Species, sensitive natural communities including jurisdictional waters, and effects on Wildlife Movement Corridors (Impact 4.4.1, Impact 4.4.2, Impact 4.4.3, Impact 4.4.4, and Impact 4.4.6)

Implementation of the proposed General Plan could result in impacts to special-status plant and animal species, sensitive natural communities, jurisdictional waters including wetlands, and wildlife movement corridors. Proposed General Plan policies and programs along with mitigation measures identified under these impacts reduce the impacts to less than significant levels.

Compared to the proposed project, Alternative 2 would not expand the City's Planning Area to include approximately 500 acres south of Road 20 as planned by the proposed General Plan. The majority of this area is currently designed as residential and commercial, and includes agricultural land uses. Because of their high degree of disturbance, agricultural areas generally have a low habitat value for wildlife, although a number of species adapted for disturbed conditions can utilize these areas. Fruit and nut orchards and fields of corn or pasture provide food and cover for squirrels, numerous birds, raccoons (*Procyon lotor*), and mule deer (*Odocoileus hemionus*). Other species that take advantage of these food sources are feral pig (*Sus scrofa*), ring-necked pheasant (*Phasianus colchicus*), American crow (*Corvus brachyrhynchos*), Norway rat (*Rattus norvegicus*), coyote (*Canis latrans*), opossum (*Didelphis virginiana*), and striped skunk (*Mephitis mephitis*). Seasonally flooded pastures can provide important habitat for migratory waterfowl. Alternative 2 would experience similar, but reduced land use changes and continued development which could result in impacts to special-status plant and animal species, sensitive natural communities, jurisdictional waters including wetlands, and wildlife movement corridors due to disturbance or conversion of natural habitats. Implementation of Alternative 2 would result in similar potential for impacts to biological resources.

Cultural Resources

Potential destruction or damage to known and undiscovered prehistoric resources, historic resources, and human remains under project and cumulative conditions (Impact 4.5.1 and Impact 4.5.3)

Adoption of the proposed City of Orland General Plan could result in the potential disturbance of prehistoric, historic and/or human remains. Implementation of the proposed General Plan policies, programs, along with mitigation measures identified in Section 4.5, Impact 4.5.1 would assist in reducing significant impacts to known cultural resources, as well as to any unknown cultural resources. Impacts to historic resources and paleontological resources would be reduced to a less than significant level.

Implementation of Alternative 2 would result in a reduced potential for impacts to undiscovered cultural resources by not expanding the City's southern Planning Area boundary beyond Road 20 as planned by the proposed General Plan. As ultimate buildout of Alternative 2 would result in less development when compared to the proposed General Plan (approximately 500 acres), Alternative 2 is considered to be an environmentally better alternative.

Result in impacts to paleontological resources under project and cumulative conditions (Impact 4.5.2 and Impact 4.5.4)

Adoption of the proposed City of Orland General Plan could result in the potential disturbance of paleontological resources. Implementation of the proposed General Plan policies, programs, along with mitigation measures identified in Section 4.5, Impact 4.5.2 would assist in reducing significant impacts to known paleontological resources, as well as to any unknown cultural resources. Impacts to historic resources and paleontological resources would be reduced to a less than significant level.

Implementation of Alternative 2 would result in a reduced potential for impacts to undiscovered paleontological resources by not expanding the City's southern Planning Area boundary beyond Road 20 as planned by the proposed General Plan. As ultimate buildout of Alternative 2 would result in less development when compared to the proposed General Plan

(approximately 500 acres), Alternative 2 is considered to be an environmentally better alternative.

Geology, Seismicity, Soils, and Hazardous Materials

Result in the placement of structures and development in areas of seismic sensitivity (Impact 4.6.1)

Implementation of the proposed General Plan may result in the placement of structures and development in areas of seismic sensitivity. The proposed City of Orland General Plan policies and programs as well as mitigation measures identified in Section 4.6, Impact 4.5.2 require adherence to the California Building Code and in some cases a geotechnical investigation prior to site development. Such actions reduce the effects resulting from earthquakes, ground shaking, liquefaction, and other secondary hazards within the proposed Orland General Plan Planning Area to a minimum. This impact is considered to be less than significant.

Alternative 2 would result in similar impacts to the proposed project by allowing the placement of structures and development in areas of seismic sensitivity.

Potential increase of erosion and loss of topsoil (Impact 4.6.2)

Implementation of the proposed General Plan may result in substantial construction and site preparation activities. These activities increase soil erosion, wind and water erosion, and siltation of local drainages during construction, excavation and grading activities. Compliance with adopted erosion control standards and NPDES General Construction SWPPP requirements, as well as proposed General Plan policies and programs would result in less than significant erosion impacts.

Alternative 2 may also result in construction and site preparation activities, however not to the level of the proposed project. This is due to Alternative 2's lessened land availability for residential development (approximately 500 acres) than the proposed project. Therefore, Alternative 2 would be an environmentally superior alternative.

Potential development on unstable soils (Impact 4.6.3)

Implementation of the proposed General Plan may allow for development in areas with unstable soils. Compliance with adopted California Building Code requirements and mitigation measure **MM 4.6.1** which requires a geotechnical investigation prior to site development, as well as implementation of the proposed General Plan policies and programs would ensure that expansive or unstable soils related impacts are reduced to a less than significant level.

Implementation of Alternative 2 would result in similar impacts as the proposed General Plan. Alternative 2 would be subject to the standards regarding development on unstable soils identified in the California Building Code and the adopted County General Plan policies.

Result in the release of hazardous materials (Impact 4.6.6)

Implementation of the proposed General Plan would allow for the potential to result in the release of hazardous materials within the City of Orland Planning Area. Proposed City of Orland General Plan policies and associated programs, as well as adherence to all federal, state, and local regulations regarding hazardous materials, and mitigation measure **MM 4.6.6** would reduce the environmental impacts associated with the release of hazardous materials to less than significant.

As the use of hazardous materials is regulated by federal, state, and local agencies, the need for many policies in the General Plan is not necessarily required. Because certain agencies have been assigned the task of regulating hazardous materials by the federal and state government, inclusion of policies in a general plan would not necessarily increase the protection of individuals from these potential hazards. Therefore, Alternative 2 is considered to have similar hazardous material-related impacts than the proposed project.

Hydrology and Water Quality

Result in surface water quality impacts and cumulative water quality impacts (Impact 4.7.1, Impact 4.7.5)

Implementation of the proposed General Plan could result in an alteration of existing drainage, the discharge of polluted runoff, discharge that could cause harm to the biological integrity of waterways, adversely impact water quality standards, or otherwise substantially degrade surface water quality. Proposed General Plan policies and programs, as well as compliance with NPDES permit requirements would ensure that both construction-related and operational impacts to surface water resources in the General Plan Planning Area would be less than significant under project and cumulative conditions.

Alternative 2 may also result in construction and site preparation activities, however not to the level of the proposed project. While Alternative 2 would result in a reduced potential for water quality impacts given the extent of urban development would be reduced under buildout conditions (approximately 500 acres) both Alternative 2 and the proposed project offer a substantial level of protection through its policies and programs. Therefore, implementation of Alternative 2 would result in similar potential for surface water quality impacts.

Result in groundwater supply and quality impacts and cumulative water quality impacts (Impact 4.7.2, Impact 4.7.3, Impact 4.7.5)

Implementation of the proposed General Plan and the resultant increase in development could result in the degradation of groundwater quality and supply resulting from future land uses. Proposed General Plan policies and programs would ensure that impacts to groundwater resources in the City of Orland area would be considered less than significant under project and cumulative conditions.

Alternative 2 would contain identical policies and programs regarding hydrology and water quality compared with the proposed General Plan. While Alternative 2 would result in a reduced potential for water quality impacts given the extent of urban development would be reduced under buildout conditions (approximately 500 acres), both Alternative 2 and the proposed project offer a substantial level of protection through its policies and programs. Therefore, implementation of Alternative 2 would result in similar potential for groundwater supply and quality impacts.

Result in drainage and flooding impacts (Impact 4.7.4)

Implementation of the proposed General Plan and resultant increase in development would potentially increase impervious surfaces and alter drainage conditions and storm water runoff rates throughout Orland, which could result in substantial erosion or siltation on- or offsite. Proposed General Plan policies and programs would ensure that drainage and flood related impacts would be less than significant under project conditions.

Alternative 2 would also have potential drainage and flooding impacts as a result of development yet would contain identical policies and programs regarding drainage and flooding compared with the proposed General Plan. While Alternative 2 would result in a reduced potential for drainage and flooding impacts given the extent of urban development would be reduced under buildout conditions (approximately 500 acres), both Alternative 2 and the proposed project offer a substantial level of protection through its policies and programs which results in a less than significant impact. Therefore, implementation of Alternative 2 would result in similar potential for drainage and flooding related impacts.

Noise

Result in noise-related impacts to noise-sensitive land uses (Impact 4.9.3)

Implementation of the proposed General Plan would result in future development of noise-producing land uses near noise-sensitive land uses. The policies of the proposed General Plan Noise Element require that noise impacts be evaluated in the case of new noise-producing developments constructed near existing noise-sensitive land uses and appropriate noise mitigation measures must be included in the project design of such development. Because of this, the implementation of the proposed General Plan will result in a less than significant impact under project conditions.

Implementation of Alternative 2 would result in a reduced potential for impacts to noise-sensitive land uses by not expanding the City's southern Planning Area boundary beyond Road 20 as planned by the proposed General Plan. As ultimate buildout of Alternative 2 would result in less development when compared to the proposed General Plan (approximately 500 acres), Therefore, Alternative 2 is considered to be an environmentally superior alternative.

Result in significant increase in traffic noise levels at existing noise-sensitive areas within Orland (Impact 4.9.4)

Implementation of the proposed General Plan would result in significant increases in traffic noise levels at existing noise-sensitive areas within Orland. It is infeasible to ensure that existing residential uses will not be exposed to future traffic noise levels exceeding the City's noise standards or significantly exceeding levels they are exposed to today. For example, it may not be possible to construct a noise barrier at an existing residence due to engineering constraints (utility easements or driveway openings), and building façade sound insulation would only benefit interior spaces, so outdoor activity areas may still be affected. Because of this, the implementation of the proposed General Plan will result in a significant and unavoidable impact under project conditions.

Implementation of Alternative 2 would result in a reduced potential for impacts to noise-sensitive land uses by not expanding the City's southern Planning Area boundary beyond Road 20 as planned by the proposed General Plan. As ultimate buildout of Alternative 2 would result in less development when compared to the proposed General Plan (approximately 500 acres), Therefore, Alternative 2 is considered to be an environmentally superior alternative.

Result in significant increases in noise levels within Orland (Impact 4.9.6)

Implementation of the proposed General Plan would result in significant increases in noise levels within Orland. It is infeasible to ensure that existing residential uses will not be exposed to future traffic noise levels exceeding the City's noise standards or significantly exceeding levels they are exposed to today. For example, it may not be possible to construct a noise barrier at an existing

residence due to engineering constraints (utility easements or driveway openings), and building façade sound insulation would only benefit interior spaces, so outdoor activity areas may still be affected. Because of this, the implementation of the proposed General Plan will result in a significant and unavoidable impact under cumulative conditions.

Implementation of Alternative 2 would result in a reduced potential for impacts to noise-sensitive land uses by not expanding the City's southern Planning Area boundary beyond Road 20 as planned by the proposed General Plan. As ultimate buildout of Alternative 2 would result in less development when compared to the proposed General Plan (approximately 500 acres), Therefore, Alternative 2 is considered to be an environmentally superior alternative.

Population and Housing

Result in the increase of population and housing (Impact 4.10.1, 4.10.3)

Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the area. Land use changes included in the proposed General Plan may result in a substantial increase the population to the area over existing conditions. The proposed General Plan does not contain any policies which would limit population growth. Because of this, the implementation of the proposed General Plan will result in a significant and unavoidable impact under project and cumulative conditions.

The impacts on future population growth and housing development may vary, depending on factors such as the housing market, job availability, type of housing built and economic conditions. Under Alternative 2, fewer housing units would be built than under the proposed project (approximately 1,000 fewer units). The population projections assume a constant relationship between population and housing stock, which likely will not occur. The reduction in housing units in an area of mostly rural residential uses under Alternative 2 would result in a reduced impact in housing production and population growth than the proposed project. Therefore, Alternative 2 is considered to be an environmentally superior alternative.

Community Services

Result in fire protection and emergency medical services impacts under project and cumulative conditions (Impact 4.11.1.1, Impact 4.11.1.3)

Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the area. As the City is expected to expand outward in multiple directions, there is concern that the increased population resulting from the proposed General Plan could add strain to fire protection services in the area. At its present staffing levels, the Fire Department could not provide services to potential growth allowed under the proposed General Plan. However, it was determined that implementation of proposed General Plan policies and programs would ensure adequate fire protection services and facilities for City residents and properties resulting in a less than significant impact under project and cumulative conditions.

Alternative 2 would contain identical policies and programs regarding fire protection services compared with the proposed General Plan. Alternative 2 would result in a reduced potential for fire protection related impacts given the extent of potential urban development within the Orland Planning Area would be reduced. Alternative 2 is considered to have reduced fire protection-related impacts than the proposed project. Therefore, Alternative 2 is considered to be an environmentally superior alternative.

Result in impacts to police protection services under project and cumulative conditions (Impact 4.11.2.1, Impact 4.11.2.2)

Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the area. As the City population is expected to expand, there is concern that the increased population resulting from the proposed General Plan could add strain to police protection services in the area. It was determined that implementation of proposed General Plan policies and programs would ensure adequate police protection services and facilities for City residents and properties resulting in a less than significant impact under project and cumulative conditions.

Alternative 2 would contain identical policies and programs regarding police protection services compared with the proposed General Plan. Alternative 2 would result in a reduced potential for police protection related impacts given the extent of potential urban development within the Orland Planning Area would be reduced. Alternative 2 is considered to have reduced police protection-related impacts than the proposed project. Therefore, Alternative 2 is considered to be an environmentally superior alternative.

Result in Impacts to public school facilities under project and cumulative conditions (Impact 4.11.3.1, Impact 4.11.3.2)

Implementation of the proposed General Plan would result in the addition of new residents, and a resultant increase in the number of students in the Orland Unified School District. The construction of these upgrades could cause significant environmental impacts. California Government Code Sections 65995 (h) and 65996 (b) provide full and complete school facilities mitigation. Section 65995(h) states that the payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code is deemed to be full and complete mitigation of the impacts for the planning, use, development, or the provision of adequate school facilities, and Section 65996 (b) states that the provisions of the Government Code provide full and complete school facilities mitigation. Furthermore, the Orland Unified School District would be required to conduct the appropriate environmental review prior to any significant expansion of school facilities or the development of new school facilities. Impacts to public school facilities in Orland would be reduced to a less than significant level.

While Alternative 2 would result in less potential for development and population growth, this alternative would still result in impacts to Orland's public school facilities. Implementation of Alternative 2 would result in similar public school demand as development under this Alternative would accommodate a reduced amount of growth (15,210 residential units and 42,940 people at buildout compared with 16,513 residential units and 46,513 people at buildout under the proposed General Plan). Alternative 2 is considered to have reduced public school-related impacts than the proposed project, and result in a less than significant impact. Therefore, Alternative 2 is considered to be an environmentally superior alternative.

Result in increased demand on existing parklands and recreation facilities under project and cumulative conditions (Impact 4.11.4.1, Impact 4.11.4.2)

Expansion of the City's Planning Area and city limits under the proposed General Plan would result in a projected 2028 population of approximately 12,286 persons and increase of 4,933 persons over the existing population. The additional demand on existing parks and recreational facilities, particularly the City-managed facilities, would increase the need for maintenance and improvements. These improvements could have environmental impacts, although the exact

impacts cannot be determined since the potential improvements are unknown at this time. However, given the developed character of the existing parks, these impacts are expected to be limited. It was determined that implementation of proposed General Plan policies and programs, along with mitigation measure **MM 4.11.4.1** would reduce the proposed General Plan's parks and recreation impacts to less than significant.

While Alternative 2 would result in less potential for development and population growth, this alternative would still result in impacts to Orland's parklands and recreation facilities. Implementation of Alternative 2 would result in similar demand as development under this Alternative would accommodate a reduced amount of growth (15,210 residential units and 42,940 people at buildout compared with 16,513 residential units and 46,513 people at buildout under the proposed General Plan). Alternative 2 is considered to have reduced recreation-related impacts than the proposed project. Therefore, Alternative 2 is considered to be an environmentally superior alternative.

Public Services and Utilities

Result in the need for additional water treatment capacity, storage capacity, and other conveyance facilities under project and cumulative conditions (Impact 4.12.1.1, Impact 4.12.1.2, Impact 4.12.1.3)

Implementation of the proposed General Plan would allow urban development in areas currently used for agriculture or are otherwise undeveloped. To serve the new development, water lines would need to be installed or extended. Additional wells and water treatment facilities would also be necessary. Additional water infrastructure also may be necessary to serve currently undeveloped areas within the City limits. These actions would result in a physical effect on the environment. The policies and programs in the proposed General Plan as well as mitigation measures **MM 4.12.1.1a** and **MM 4.12.1b** ensure that water supply needs are met in a timely, efficient, and logical manner.

While Alternative 2 would result in a slightly less potential for development and population growth, this alternative would still result in the need for additional water treatment capacity, storage capacity, and other conveyance facilities. Implementation of Alternative 2 would result in reduced physical impacts to the environment as development under this Alternative would accommodate a reduced amount of growth (15,210 residential units and 42,940 people at buildout compared with 16,513 residential units and 46,513 people at buildout under the proposed General Plan). Therefore, Alternative 2 would be considered an environmentally superior alternative.

Substantially increase wastewater flows and require additional infrastructure (Impact 4.12.2.1, Impact 4.12.2.2)

Implementation of the proposed General Plan would substantially increase wastewater flows and require additional infrastructure and may require additional treatment capacity to accommodate anticipated demands that would result in a physical effect on the environment. Proposed General Plan policies and programs along with mitigation measures identified under these impacts reduce the impacts to less than significant levels under project conditions. Proposed General Plan impacts to wastewater conveyance and treatment under cumulative conditions are considered to be significant and unavoidable.

Alternative 2 would also increase wastewater flows and may require additional treatment capacity. However, Alternative 2 would result in less population growth by approximately 3,000

people at buildout. Therefore the demand for treatment facilities is not as great as the proposed project. As a result, Alternative 2 is the better environmental alternative.

Increase storm water runoff rates generated within and downstream of the proposed Planning Area and require additional infrastructure under project and cumulative conditions (Impact 4.12.3.1, Impact 4.12.3.2)

Implementation of the proposed General Plan would increase storm water runoff rates generated within and downstream of the proposed Planning Area when compared with existing conditions and require additional infrastructure to accommodate anticipated demands that would result in a physical effect on the environment. Proposed General Plan policies and programs identified under these impacts reduce the impacts to less than significant levels under project and cumulative conditions.

Alternative 2 would also increase storm water flows and may require additional infrastructure. However, Alternative 2 would result in less population growth by approximately 3,000 people at buildout. Therefore the demand for storm water facilities is not as great as the proposed project. As a result, Alternative 2 is the better environmental alternative.

Result in an increase in solid waste generation and the demand for related services under project and cumulative conditions (Impact 4.12.4.1. Impact 4.12.4.2)

Implementation of the proposed General Plan would substantially increase solid waste disposal demand and require additional landfill capacity to accommodate anticipated demands that would result in a physical effect on the environment. Proposed General Plan policies and programs along with mitigation measures identified under these impacts reduce the impacts to less than significant levels under project and cumulative conditions.

Alternative 2 would also increase solid waste disposal demand and may require additional landfill capacity. However, Alternative 2 would result in less population growth by approximately 3,000 people at buildout. Therefore the demand for disposal facilities is not as great as the proposed project. As a result, Alternative 2 is the superior environmental alternative.

Substantially increase demand for electrical, natural gas, telephone and related infrastructure under project and cumulative conditions (Impact 4.12.5.1, Impact 4.12.5.2).

Implementation of the proposed General Plan would increase demand for electrical, natural gas, telephone and related infrastructure. Proposed General Plan Land Use Element Policy 2.2.B and associated Program 2.2.B.1 will assist in reducing the proposed General Plan's electrical, natural gas, telephone, and cable related impacts to a level that is less than significant.

Alternative 2 would also increase the demand for electrical, natural gas, telephone and related infrastructure. However, Alternative 2 would result in less population growth. Therefore the demand for these facilities is not as great as the proposed project. As a result, Alternative 2 is the superior environmental alternative.

Transportation and Circulation

Result in increased traffic volumes on local intersections (Impact 4.13.1)

Implementation of the proposed General Plan would result in increased traffic volumes and a decrease in LOS on area intersections. Nine of the 14 study intersections during both the a.m. peak hour and the p.m. peak hour would operate at an acceptable LOS under 2028 General Plan conditions. Implementation of mitigation measure **MM 4.13.1** would reduce impacts to the remaining five study intersection to a level that is less than significant.

Alternative 2 would have a similar potential to include land uses that produce additional traffic. This impact for Alternative 2 could be mitigated similar to the proposed General Plan through the application of proposed policies and programs. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in similar impacts to transportation facilities.

Result in increased traffic volumes on local roadways (Impact 4.13.2)

Implementation of the proposed General Plan would result in increased traffic volumes and a decrease in LOS on area roadways. Implementation of intersection mitigation measures described under mitigation measure **MM 4.13.1** would result in acceptable traffic operating conditions at local roadways. Because mitigation measure **MM 4.13.1** would result in acceptable traffic operating conditions, the impact on roadway segment LOS would be reduced to a less than significant level.

Alternative 2 would have a similar potential to include land uses that produce additional traffic. This impact for Alternative 2 could be mitigated similar to the proposed General Plan through the application of proposed policies and programs. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in similar impacts to transportation facilities.

Result in increased traffic volumes on State Route (SR) 32 through the year 2028 and beyond the General Plan 20-year planning horizon (Impact 4.13.6)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase traffic volumes on SR 32 through the year 2028 and beyond the General Plan 20-year planning horizon. Implementing improvements recommended by Caltrans in the *Transportation Concept Report State Route 32* would reduce this impact to less than cumulatively considerable.

Alternative 2 would have a similar potential to include land uses that produce additional traffic. This impact for Alternative 2 could be mitigated similar to the proposed General Plan through the application of proposed policies and programs. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in similar impacts to transportation facilities.

Result in increase demand for additional east-west roadway capacity (Impact 4.13.7)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional east-west roadway capacity. Until such time that the right-of-way along the County Road 18 corridor is able to be reserved by the City and the recommended quantitative analysis and subsequent improvements are

programmed and funded, their implementation cannot be ensured. This impact is considered cumulatively considerable.

Alternative 2 would have a similar potential to include land uses that produce additional traffic. This impact for Alternative 2 could be mitigated similar to the proposed General Plan through the application of proposed policies and programs. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in similar impacts to transportation facilities.

Result in increase demand for additional capacity on County Road HH (Impact 4.13.8)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road HH. Until such time that the recommended improvements are programmed and funded, their implementation cannot be ensured. Therefore this impact would be considered considerable under cumulative conditions.

Alternative 2 would have a similar potential to include land uses that produce additional traffic. This impact for Alternative 2 could be mitigated similar to the proposed General Plan through the application of proposed policies and programs. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in similar impacts to County Road HH.

Result in increase demand for additional capacity on County Road 20 (Impact 4.13.9)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road 20. Until such time that the recommended improvements are programmed and funded, their implementation cannot be ensured. Therefore this impact would be considered considerable under cumulative conditions.

Alternative 2 would have a similar potential to include land uses that produce additional traffic. This impact for Alternative 2 could be mitigated similar to the proposed General Plan through the application of proposed policies and programs. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in similar impacts to County Road 20.

Greenhouse Gases and Climate Change

Result in inconsistencies with greenhouse gas reduction numbers (Impact 5.0.1)

Subsequent land use activities associated with implementation of the proposed General Plan would result in the cumulative increase of greenhouse gases including CO_2 emitted into the atmosphere. However, the proposed General Plan would implement a number of policies that would complement and be consistent with the early emission reduction strategies contained in the California Climate Action Team's (CAT) Report to the Governor and Executive Order S-3-05. Implementation of the proposed General Plan would be consistent with state measures to reduce greenhouse gas emissions.

Alternative 2 would have a similar potential to include land uses that have potential to produce additional greenhouse gas emissions. This impact for Alternative 2 could be mitigated similar to the proposed General Plan through the application of proposed policies, programs, and with

CAT Greenhouse Gas Reduction Strategies. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in similar greenhouse gas emissions.

Result in the potential impacts to the City by the environmental effects of global climate change (Impact 5.0.2)

Implementation of the proposed General Plan could substantially increase emissions of GHGs over existing conditions that could result in environmental effects to the City. Based on consideration of the recent regional and local climate change studies, and based that the City's groundwater source is anticipated to largely remain intact, it is reasonably expected that the impacts of global climate change on the City would be less than cumulatively considerable.

Alternative 2 would have a similar potential to include land uses that have potential to produce additional greenhouse gas emissions. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in similar greenhouse gas emissions.

Alternative 3 – County General Plan Alternative

Characteristics

Glenn County is currently in the process of updating its General Plan. This Alternative will reflect land uses identified by Glenn County for the area outside the City of Orland City limits yet within the City Planning Area. The use of this alternative is dependent on the availability of land use information for the Glenn County General Plan update. For example, while Glenn County has completed a Draft Preferred Land Use scenario for the unincorporated lands surrounding the City (**Figure 6.0-1**), the characteristics of intensity[1] for each Glenn County land use designation has yet to be determined. Therefore, for the purposes of this analysis, the characteristics of intensity for each Glenn County designation identified in **Figure 6.0-1** will be assumed to mimic the proposed characteristics of intensity identified under the proposed City of Orland General Plan.

Table 6.0-5 illustrates estimated Alternative 3 land uses by acreage within the existing Planning Area.

TABLE 6.0-5
ALTERNATIVE 3 – LAND USES

Land Use Designation	Total Acres
Commercial	321.8
Heavy Industrial and Light Industrial/Commercial	1,269.1
Open Space/Resources Conservation and Public Facility	1,240.5
Residential Estates	562.9
High Density Residential	61.7

[1] Characteristics of intensity are defined as the number of dwelling units per acre; the number of people per dwelling unit; and, dwelling height and dwelling coverage per acre.

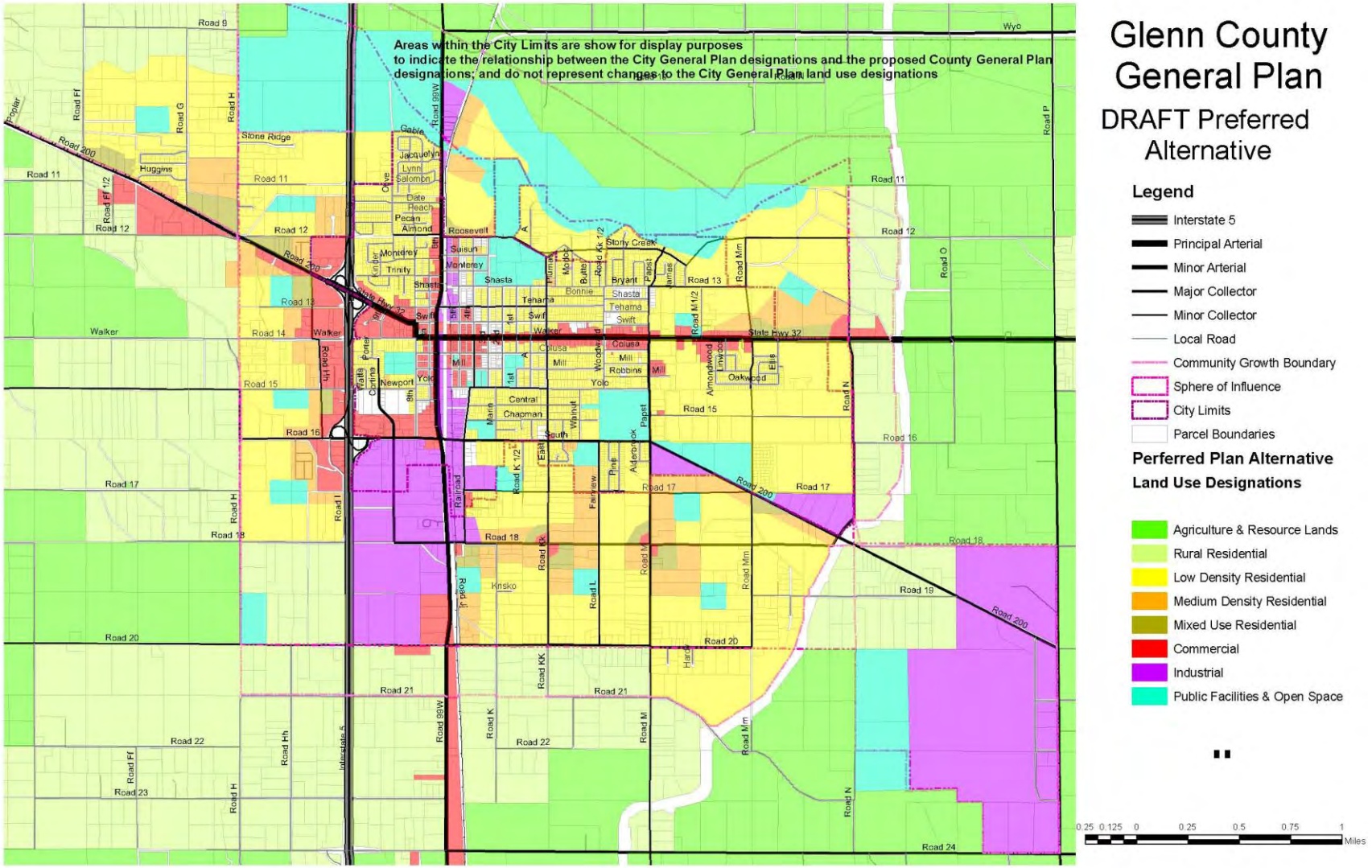
Land Use Designation	Total Acres
Medium Density Residential	324.9
Low Density Residential	1,768.4
Mixed Use	86.9
Other	476.8
Total	**6,113**

Table 6.0-6 summarizes the potential residential development under Alternative 3. Buildout under Alternative 3 would result in approximately 16,526 residential dwelling units and an associated population of 46,411, as well as development of commercial, industrial, and public uses within the General Plan Planning Area. The estimated population is based upon the analysis used in **Table 4.0-1** of Section 4.0 of this Draft EIR.

TABLE 6.0-6
ALTERNATIVE 3 – POTENTIAL BUILDOUT HOUSING AND POPULATION

Land Use Designation	Acres	Housing Units	Population
Residential Land Uses			
Residential Estates	562.9	1,125	3,375
High Density Residential	61.7	1,542	3,084
Medium Density Residential	324.9	3,249	8,122
Low Density Residential	1,768.4	10,610	31,830
Totals	**2,717.9**	**16,526**	**46,411**

FIGURE 6.0-1
GLENN COUNTY GENERAL PLAN UPDATE DRAFT PREFERRED ALTERNATIVE



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Comparative Impacts

Aesthetics

Alteration of the existing visual character (Impact 4.1.1)

Implementation of the proposed General Plan would change the visual character of the Planning Area. The existing visual character of the City is one with a small town feel divided into several distinct areas (residential, downtown, service commercial, etc.). Implementation of the proposed General Plan would change the visual character of the Planning Area through intensification of urban uses within the existing City limits and introduction of urban uses within the Planning Area. This impact was identified as a less than significant impact under project conditions.

Implementation of Alternative 3 would reflect land use designations identified by Glenn County (which is currently in the process of updating its General Plan) for the area outside the City of Orland City limits yet within the City Planning Area (**Figure 6.0-1**). Refer to **Figure 3.0-3** of the Project Description to compare the land use designations between the proposed City of Orland General Plan and Alternative 3. Urban development allowed under this Alternative would still result in potential impacts to the visual character of the City by allowing urban development in rural areas. Furthermore, because of the increased development intensity when compared to the proposed project and the addition of village or neighborhood core areas, this Alternative would have an increased impact on visual character. Therefore, the proposed project would be considered to be the superior environmental alternative.

Agricultural Resources

Loss of agricultural land under project and cumulative conditions (Impact 4.2.1 and Impact 4.2.4)

As noted in Section 4.2, Agricultural Resources, land use designation changes in the proposed General Plan results in a net decrease of substantial agriculturally designated land acreages. Most of the agricultural lands within the proposed Planning Area are actually outside the City limits and located along the edges of the City, to the east, south, west and north. This was identified as a significant and unavoidable impact under project and cumulative conditions.

Alternative 3 would still result in some loss of important farmlands within the City limits as this alternative will reflect land uses identified by Glenn County for the area outside the City of Orland City limits yet within the City Planning Area. The Glenn County Draft Preferred Land Use scenario contains an Agricultural and Resource Land Use designation. For the purposes of this analysis, the approximately 192 acres identified as Agricultural and Resource Land by Glenn County outside the City of Orland City Limits yet within the City Planning Area are assumed to be equivalent to the City of Orland's Open Space/Resource Conservation land use designation. The intent of the Open Space/Resource Conservation designation is to assure Orland residents a healthy amount of public open space and to preserve and enhance the natural environment.

This alternative could reduce important farmland impacts as compared to the proposed General Plan as the nature of Open Space/Resource Conservation may preserve agricultural activities. However, this land use designation does not specifically address agricultural lands and it therefore must be assumed that such lands would eventually be developed into public parklands or other natural resource areas. As implementation of Alternative 3 would expand the City's Planning Area the same amount as planned by the proposed General Plan, Alternative 3

would have a similar impact regarding the loss of important farmlands as the proposed General Plan.

Changes in existing land uses resulting in conversion of agricultural land (Impact 4.2.2)

Implementation of the proposed General Plan would place urbanized land uses adjacent to, and would replace, existing agricultural uses. It is anticipated that as the City's growing population increases the need for more residential, commercial and industrial development, agriculture/urban interface conflicts may occur. This was identified as a significant and unavoidable impact.

Implementation of Alternative 3 would result in similar land use conflicts between urban/agricultural uses as implementation of Alternative 3 would expand the City's Planning Area the same amount as planned by the proposed General Plan. Much like the proposed General Plan, Alternative 3 proposes a mix of residential, commercial, and industrial lands in this area. Therefore, Alternative 3 would result in similar farmland impacts as compared to the proposed General Plan.

Air Quality

Contribution to air quality impacts (construction, operational and toxic air contaminants) under project and cumulative conditions (Impacts 4.3.2, Impact 4.3.3, Impact 4.3.4, and Impact 4.3.6)

Implementation of the proposed General Plan and the resulting development would increase the potential for additional mobile and stationary sources emissions, short-term construction emissions, and toxic air contaminants, which would adversely affect regional air quality. All of the air quality impacts listed above result in significant and unavoidable impacts.

Alternative 3 would have a similar potential to include land uses that have the potential to produce additional mobile and stationary sources emissions, short-term construction emissions, and toxic air contaminants. This impact for Alternative 3 could be mitigated similar to the proposed General Plan through the application of proposed policies, programs, and mitigation identified in Section 4.3, Air Quality. However, buildout of Alternative 3 would theoretically result in slightly more residential units and people then the proposed General Plan therefore resulting in similar impacts to air quality.

Biological Resources

Result in project and cumulative impacts to Special- Status Species, sensitive natural communities including jurisdictional waters, and effects on Wildlife Movement Corridors (Impact 4.4.1, Impact 4.4.2, Impact 4.4.3, Impact 4.4.4, and Impact 4.4.6)

Implementation of the proposed General Plan could result in impacts to special-status plant and animal species, sensitive natural communities, jurisdictional waters including wetlands, and wildlife movement corridors. Proposed General Plan policies and programs along with mitigation measures identified under these impacts reduce the impacts to less than significant levels.

Compared to the proposed project, Alternative 3 would experience similar land use changes and continued development which could result in impacts to special-status plant and animal species, sensitive natural communities, jurisdictional waters including wetlands, and wildlife movement corridors due to disturbance or conversion of natural habitats. Implementation of Alternative 3 would result in similar potential for impacts to biological resources.

Cultural Resources

Potential destruction or damage to known and undiscovered prehistoric resources, historic resources, and human remains under project and cumulative conditions (Impact 4.5.1 and Impact 4.5.3)

Adoption of the proposed City of Orland General Plan could result in the potential disturbance of prehistoric, historic and/or human remains. Implementation of the proposed General Plan policies, programs, along with mitigation measures identified under **Impact 4.5.1** would assist in reducing significant impacts to known cultural resources, as well as to any unknown cultural resources. Impacts to historic resources and paleontological resources would be reduced to a less than significant level.

Compared to the proposed project, Alternative 3 would experience similar land use changes and continued development which could result in similar potential for impacts to undiscovered cultural resources by expanding development in the City's Planning Area. Therefore, Alternative 3 would result in similar impacts as compared to the proposed General Plan.

Result in impacts to paleontological resources under project and cumulative conditions (Impact 4.5.2 and Impact 4.5.4)

Adoption of the proposed City of Orland General Plan could result in the potential disturbance of paleontological resources. Implementation of the proposed General Plan policies, programs, along with mitigation measures identified under **Impact 4.5.2** would assist in reducing significant impacts to known paleontological resources, as well as to any unknown cultural resources. Impacts to historic resources and paleontological resources would be reduced to a less than significant level.

Compared to the proposed project, Alternative 3 would experience similar land use changes and continued development which could result in similar potential for impacts to paleontological resources by expanding development the City's Planning Area. Therefore, Alternative 3 would result in similar impacts as compared to the proposed General Plan.

Geology, Seismicity, Soils, and Hazardous Materials

Result in the placement of structures and development in areas of seismic sensitivity (Impact 4.6.1)

Implementation of the proposed General Plan may result in the placement of structures and development in areas of seismic sensitivity. The proposed City of Orland General Plan policies and programs as well as mitigation measures identified under **Impact 4.5.2** require adherence to the California Building Code and in some cases a geotechnical investigation prior to site development. Such actions reduce the effects resulting from earthquakes, ground shaking, liquefaction, and other secondary hazards within the proposed Orland General Plan Planning Area to a minimum. This impact is considered to be less than significant.

Much like the proposed General Plan, Alternative 3 proposes a mix of residential, commercial, and industrial lands in this area. Alternative 3 would allow the placement of structures and development in areas of seismic sensitivity, resulting in similar impacts as the proposed project.

Potential increase of erosion and loss of topsoil (Impact 4.6.2)

Implementation of the proposed General Plan may result in substantial construction and site preparation activities. These activities increase soil erosion, wind and water erosion, and siltation

of local drainages during construction, excavation and grading activities. Compliance with adopted erosion control standards and NPDES General Construction Storm Water Permit and SWPPP requirements, as well as proposed General Plan policies and programs would result in less than significant erosion impacts.

Alternative 3 may also result in substantial construction and site preparation activities to a level of intensity similar to that of the proposed project. Buildout under Alternative 3 would result in approximately 16,526 residential dwelling units and an associated population of 46,411, as well as development of commercial, industrial, and public uses within the General Plan Planning Area while buildout of the proposed project would result in approximately 16,419 dwelling units and an associated population of 46,530. Therefore, Alternative 3 would result in similar erosion and topsoil impacts as the proposed project.

Potential development on unstable soils (Impact 4.6.3)

Implementation of the proposed General Plan may allow for development in areas with unstable soils. Compliance with adopted California Building Code requirements and mitigation measure **MM 4.6.1** which requires a geotechnical investigation prior to site development, as well as implementation of the proposed General Plan policies and programs would ensure that expansive or unstable soils-related impacts are reduced to a less than significant level.

Alternative 3 would be subject to the City standards regarding development on unstable soils identified in the California Building Code and the adopted General Plan policies. Therefore, implementation of Alternative 3 would result in similar impacts as the proposed project.

Result in the release of hazardous materials (Impact 4.6.6)

Implementation of the proposed General Plan would allow for the potential to result in the release of hazardous materials within the City of Orland Planning Area. Proposed City of Orland General Plan policies and associated programs, as well as adherence to all federal, state, and local regulations regarding hazardous materials, and mitigation measure **MM 4.6.6** would reduce the environmental impacts associated with the release of hazardous materials to less than significant.

Alternative 3 would still have the potential to result in the release of hazardous materials as the proposed project. However, as the use of hazardous materials is regulated by federal, state, and local agencies, the need for many policies in the General Plan is not necessarily required. Because various agencies have been assigned the task of regulating hazardous materials by the federal and state government, inclusion of policies in a general plan would not necessarily increase the protection of individuals from these potential hazards. However, it is assumed that the Glenn County General Plan Update would include policies regarding hazardous materials; this alternative is considered to have similar hazardous material-related impacts than the proposed project.

Hydrology and Water Quality

Result in surface water quality impacts and cumulative water quality impacts (Impact 4.7.1, Impact 4.7.5)

Implementation of the proposed General Plan could result in an alteration of existing drainage, the discharge of polluted runoff, discharge that could cause harm to the biological integrity of waterways, adversely impact water quality standards, or otherwise substantially degrade

surface water quality. Proposed General Plan policies and programs, as well as compliance with NPDES permit requirements would ensure that both construction-related and operational impacts to surface water resources in the General Plan Planning Area would be less than significant under project and cumulative conditions.

Alternative 3 would have the potential to result in an alternation of drainage and degrade water quality. Both Alternative 3 and the proposed project offer a substantial level of protection through its state and federal standards which results in a less than significant impact. Therefore, implementation of Alternative 3 would result in similar potential for surface water quality impacts as the proposed project.

Result in groundwater supply and quality impacts and cumulative water quality impacts (Impact 4.7.2, Impact 4.7.3, Impact 4.7.5)

Implementation of the proposed General Plan and the resultant increase in development could result in the degradation of groundwater quality and supply resulting from future land uses. General Plan policies and programs would ensure that impacts to groundwater resources in the City of Orland area would be considered less than significant under project and cumulative conditions.

Alternative 3 would have the potential to result in groundwater supply and water quality impacts. Much like the proposed General Plan, Alternative 3 proposes a mix of residential, commercial, and industrial lands in this area. It is assumed that under Alternative 3, the Glenn County General Plan would include policies that result in a substantial level of protection which results in a less than significant impact. Therefore, implementation of Alternative 3 would result in similar potential for groundwater quality impacts as the proposed project.

Result in drainage and flooding impacts (Impact 4.7.4)

Implementation of the proposed General Plan and resultant increase in development would potentially increase impervious surfaces and alter drainage conditions and storm water runoff rates throughout Orland, which could result in substantial erosion or siltation on- or offsite. Proposed General Plan policies and programs would ensure that drainage and flood related impacts would be less than significant under project and cumulative conditions.

Alternative 3 would also have potential drainage and flooding impacts as a result of development. While Alternative 3 would result in a similar mix of land uses and development intensity as the proposed General Plan, potential for drainage and flooding impacts under the proposed project offer a substantial level of protection through its policies and programs which results in a less than significant impact. It is assumed that the Glenn County General Plan would also include policies that address drainage and flooding impacts. Therefore, implementation of Alternative 3 would result in similar potential for drainage and flooding related impacts as the proposed project.

Noise

Result in noise-related impacts to noise-sensitive land uses (Impact 4.9.3)

Implementation of the proposed General Plan would result in future development of noise-producing land uses near noise-sensitive land uses. The policies of the proposed General Plan Noise Element require that noise impacts be evaluated in the case of new noise-producing developments constructed near existing noise-sensitive land uses and appropriate noise

mitigation measures must be included in the project design of such development. Because of this, the implementation of the proposed General Plan will result in a less than significant impact under project conditions.

Compared to the proposed project, Alternative 3 would experience similar land use changes and continued development which could result in similar potential for impacts to noise-sensitive land uses by expanding development in the City's Planning Area. Therefore, Alternative 3 would result in similar impacts as compared to the proposed project.

Result in significant increase in traffic noise levels at existing noise-sensitive areas within Orland (Impact 4.9.4)

Implementation of the proposed General Plan would result in significant increases in traffic noise levels at existing noise-sensitive areas within Orland. It is infeasible to ensure that existing residential uses will not be exposed to future traffic noise levels exceeding the City's noise standards or significantly exceeding levels they are exposed to today. For example, it may not be possible to construct a noise barrier at an existing residence due to engineering constraints (utility easements or driveway openings), and building façade sound insulation would only benefit interior spaces, so outdoor activity areas may still be affected. Because of this, the implementation of the proposed General Plan will result in a significant and unavoidable impact under project conditions.

Compared to the proposed project, Alternative 3 would experience similar land use changes and continued development which could result in similar potential for impacts to noise-sensitive land uses by expanding development in the City's Planning Area. Therefore, Alternative 3 would result in similar impacts as compared to the proposed project.

Result in significant increases in noise levels within Orland (Impact 4.9.6)

Implementation of the proposed General Plan would result in significant increases in noise levels within Orland. It is infeasible to ensure that existing residential uses will not be exposed to future traffic noise levels exceeding the City's noise standards or significantly exceeding levels they are exposed to today. For example, it may not be possible to construct a noise barrier at an existing residence due to engineering constraints (utility easements or driveway openings), and building façade sound insulation would only benefit interior spaces, so outdoor activity areas may still be affected. Because of this, the implementation of the proposed General Plan will result in a significant and unavoidable impact under cumulative conditions.

Compared to the proposed project, Alternative 3 would experience similar land use changes and continued development which could result in similar potential for impacts to noise-sensitive land uses by expanding development in the City's Planning Area. Therefore, Alternative 3 would result in similar impacts as compared to the proposed project.

Population and Housing

Result in the increase of population and housing (Impact 4.10.1, 4.10.3)

Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the area. Land use changes included in the proposed General Plan may result in a substantial increase the population to the area over existing conditions. The proposed General Plan does not contain any policies which would limit

population growth. Because of this, the implementation of the proposed General Plan will result in a significant and unavoidable impact under project and cumulative conditions.

The impacts on future population growth and housing development may vary, depending on factors such as the housing market, job availability, type of housing built and economic conditions. Under Alternative 3, more housing units would be built than under the proposed project (approximately 316 more units). The population projections in this analysis assume a constant relationship between population and housing stock, which likely will not occur. However, the increased number of housing units under Alternative 3 would result in a greater level of significant impacts on the physical environment than the proposed project.

Community Services

Result in fire protection and emergency medical services impacts under project and cumulative conditions (Impact 4.11.1.1, Impact 4.11.1.3)

Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the area. As the City is expected to expand outward in multiple directions, there is concern that the increased population resulting from the proposed General Plan could add strain to fire protection services in the area. At its present staffing levels, the Fire Department could not provide services to potential growth allowed under the proposed General Plan. However, it was determined that implementation of proposed General Plan policies and programs would ensure adequate fire protection services and facilities for City residents and properties resulting in a less than significant impact under project and cumulative conditions.

Alternative 3 would result in the potential for an increase in development and population growth which would result in increased demand for fire protection and emergency medical services. This increase in demand as development under this Alternative would accommodate only a greater amount of growth compared with the proposed General Plan. Alternative 3 is considered to have greater fire protection-related impacts than the proposed project.

Result in impacts to police protection services under project and cumulative conditions (Impact 4.11.2.1, Impact 4.11.2.2)

Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the area. As the City population is expected to expand, there is concern that the increased population resulting from the proposed General Plan could add strain to police protection services in the area. It was determined that implementation of proposed General Plan policies and programs would ensure adequate police protection services and facilities for City residents and properties resulting in a less than significant impact under project and cumulative conditions.

Alternative 3 would result in the potential for an increase in development and population growth which would result in increased demand for police protection services. This increase in demand as development under this Alternative would accommodate only a greater amount of growth compared with the proposed General Plan. Alternative 3 is considered to have greater police protection-related impacts than the proposed project.

Result in Impacts to public school facilities under project and cumulative conditions (Impact 4.11.3.1, Impact 4.11.3.2)

Implementation of the proposed General Plan would result in the addition of new residents, and a resultant increase in the number of students in the Orland Unified School District. The construction of these upgrades could cause significant environmental impacts. California Government Code Sections 65995 (h) and 65996 (b) provide full and complete school facilities mitigation. Section 65995(h) states that the payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code is deemed to be full and complete mitigation of the impacts for the planning, use, development, or the provision of adequate school facilities, and Section 65996 (b) states that the provisions of the Government Code provide full and complete school facilities mitigation. Furthermore, the Orland Unified School District would be required to conduct the appropriate environmental review prior to any significant expansion of school facilities or the development of new school facilities. Impacts to public school facilities in Orland would be reduced to a less than significant level.

Alternative 3 would result in more potential for development and population growth and would result in impacts to Orland's public school facilities. Implementation of Alternative 3 would result in similar public school demand as development under this Alternative would accommodate only a slightly greater amount of growth (16,526 residential units and 46,411 people at buildout compared with 16,419 residential units and 46,513 people at buildout under the proposed General Plan). Alternative 3 is considered to have greater public school-related impacts than the proposed project.

Result in increased demand on existing parklands and recreation facilities under project and cumulative conditions (Impact 4.11.4.1, Impact 4.11.4.2)

Expansion of the City's Planning Area and city limits under the proposed General Plan would result in a projected 2028 population of approximately 12,286 persons and increase of 4,933 persons over the existing population. The additional demand on existing parks and recreational facilities, particularly the City-managed facilities, would increase the need for maintenance and improvements. These improvements could have environmental impacts, although the exact impacts cannot be determined since the potential improvements are unknown at this time. However, given the developed character of the existing parks, these impacts are expected to be limited. It was determined that implementation of proposed General Plan policies and programs, along with mitigation measure **MM 4.11.4.1** would reduce the proposed General Plan's parks and recreation impacts to less than significant.

Alternative 3 would result in more potential for development and population growth and would result in impacts to Orland's parklands and recreation facilities. Implementation of Alternative 3 would result in similar demand as development under this Alternative would accommodate only a slightly greater amount of growth (16,526 residential units and 46,411 people at buildout compared with 16,210 residential units and 45,940 people at buildout under the proposed General Plan). Alternative 3 is considered to have greater recreation-related impacts than the proposed project.

Public Services and Utilities

Result in the need for additional water treatment capacity, storage capacity, and other conveyance facilities under project and cumulative conditions (Impact 4.12.1.1, Impact 4.12.1.2, Impact 4.12.1.3)

Implementation of the proposed General Plan would allow urban development in areas currently used for agriculture or are otherwise undeveloped. To serve the new development, water lines would need to be installed or extended. Additional wells and water treatment facilities would also be necessary. Additional water infrastructure also may be necessary to serve currently undeveloped areas within the City limits. These actions would result in a physical effect on the environment. The policies and programs in the proposed General Plan as well as mitigation measures **MM 4.12.1.1a** and **MM 4.12.1b** ensure that water supply needs are met in a timely, efficient, and logical manner. These proposed General Plan policies, programs, and mitigation measures would reduce the proposed General Plan's water supply impacts to a less than significant level.

Alternative 3 would result in a slightly greater potential for development and population growth and result in the need for additional water treatment capacity, storage capacity, and other conveyance facilities. Implementation of Alternative 3 would result in increased physical impacts to the environment as development under this Alternative would accommodate a more growth (16,526 residential units and 46,411 people at buildout compared with 16,419 residential units and 46,513 people at buildout under the proposed General Plan). Therefore, the proposed project would be considered an environmentally superior alternative compared with Alternative 3.

Substantially increase wastewater flows and require additional infrastructure (Impact 4.12.2.1, Impact 4.12.2.2)

Implementation of the proposed General Plan would substantially increase wastewater flows and require additional infrastructure and may require additional treatment capacity to accommodate anticipated demands that would result in a physical effect on the environment. Proposed General Plan policies and programs along with mitigation measures identified under these impacts reduce the impacts to less than significant levels under project conditions. Proposed General Plan impacts to wastewater conveyance and treatment under cumulative conditions are considered to be significant and unavoidable.

Alternative 3 would also increase wastewater flows and may require additional treatment capacity. Furthermore, Alternative 3 would result in more population growth by approximately 471 additional people at buildout compared with the proposed General Plan. Therefore the demand for treatment facilities is slightly greater than the proposed project. As a result, the proposed project is the superior environmental alternative.

Increase storm water runoff rates generated within and downstream of the proposed Planning Area and require additional infrastructure under project and cumulative conditions (Impact 4.12.3.1, Impact 4.12.3.2)

Implementation of the proposed General Plan would increase storm water runoff rates generated within and downstream of the proposed Planning Area when compared with existing conditions and require additional infrastructure to accommodate anticipated demands that would result in a physical effect on the environment. Proposed General Plan policies and

programs identified under these impacts reduce the impacts to less than significant levels under project and cumulative conditions.

Alternative 3 would also increase storm water flows and may require additional infrastructure. Furthermore, Alternative 3 would result in more population growth by approximately 471 additional people at buildout compared with the General Plan. Therefore the demand for storm water facilities is greater when compared with the proposed project. As a result, the proposed project is the superior environmental alternative.

Result in an increase in solid waste generation and the demand for related services under project and cumulative conditions (Impact 4.12.4.1. Impact 4.12.4.2)

Implementation of the proposed General Plan would substantially increase solid waste disposal demand and require additional landfill capacity to accommodate anticipated demands that would result in a physical effect on the environment. Proposed General Plan policies and programs along with mitigation measures identified under these impacts reduce the impacts to less than significant levels under project and cumulative conditions.

Alternative 3 would also increase solid waste disposal demand and may require additional landfill capacity. Alternative 3 would result in more population growth by approximately 471 additional people at buildout compared with the proposed General Plan. Therefore the demand for disposal facilities is greater than the proposed project. As a result, the proposed project is the superior environmental alternative.

Substantially increase demand for electrical, natural gas, telephone and related infrastructure under project and cumulative conditions (Impact 4.12.5.1, Impact 4.12.5.2).

Implementation of the proposed General Plan would increase demand for electrical, natural gas, telephone and related infrastructure. Proposed General Plan Land Use Element Policy 2.2.B and associated Program 2.2.B.1 will assist in reducing the proposed General Plan's electrical, natural gas, telephone, and cable related impacts to a level that is less than significant.

Alternative 3 would also increase the demand for electrical, natural gas, telephone and related infrastructure. Furthermore, Alternative 3 would result in more population growth. Therefore the demand for these facilities is greater than the proposed project. As a result, the proposed project is the superior environmental alternative.

Transportation and Circulation

Result in increased traffic volumes on local intersections (Impact 4.13.1)

Implementation of the proposed General Plan would result in increased traffic volumes and a decrease in LOS on area intersections. Nine of the 14 study intersections during both the a.m. peak hour and the p.m. peak hour would operate at an acceptable LOS under 2028 General Plan conditions. Implementation of mitigation measure **MM 4.13.1** would reduce impacts to the remaining five study intersection to a level that is less than significant.

Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. This impact for Alternative 3 could be mitigated similar to the proposed General Plan through the application of proposed policies, programs, and mitigation. However, buildout of Alternative 3 would theoretically result in slightly more

residential units and people then the proposed General Plan, resulting in increased impacts on traffic. As a result, the proposed project is the superior environmental alternative.

Result in increased traffic volumes on local roadways (Impact 4.13.2)

Implementation of the proposed General Plan would result in increased traffic volumes and a decrease in LOS on area roadways. Implementation of intersection mitigation measures described under mitigation measure **MM 4.13.1** would result in acceptable traffic operating conditions at local roadways. Because mitigation measure **MM 4.13.1** would result in acceptable traffic operating conditions, the impact on roadway segment LOS would be reduced to a less than significant level.

Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. This impact for Alternative 3 could be mitigated similar to the proposed General Plan through the application of proposed policies, programs, and mitigation. However, buildout of Alternative 3 would theoretically result in slightly more residential units and people then the proposed General Plan, resulting in increased impacts on traffic. As a result, the proposed project is the superior environmental alternative.

Result in increased traffic volumes on State Route (SR) 32 through the year 2028 and beyond the General Plan 20-year planning horizon (Impact 4.13.6)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase traffic volumes on SR 32 through the year 2028 and beyond the General Plan 20-year planning horizon. Implementing improvements recommended by Caltrans in the *Transportation Concept Report State Route 32* would reduce this impact to less than cumulatively considerable.

Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. This impact for Alternative 3 could be mitigated similar to the proposed General Plan through the application of proposed policies and programs. However, buildout of Alternative 3 would theoretically result in slightly more residential units and people then the proposed General Plan, resulting in increased impacts on traffic. As a result, the proposed project is the superior environmental alternative.

Result in increase demand for additional east-west roadway capacity (Impact 4.13.7)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional east-west roadway capacity. Until such time that the right-of-way along the County Road 18 corridor is able to be reserved by the City and the recommended quantitative analysis and subsequent improvements are programmed and funded, their implementation cannot be ensured. This impact is considered cumulatively considerable.

Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. This impact for Alternative 3 could be mitigated similar to the proposed General Plan through the application of proposed policies and programs. However, buildout of Alternative 3 would theoretically result in slightly more residential units and people then the proposed General Plan, therefore resulting in increased impacts on traffic. As a result, the proposed project is the superior environmental alternative.

Result in increase demand for additional capacity on County Road HH (Impact 4.13.8)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road HH. Until such time that the recommended improvements are programmed and funded, their implementation cannot be ensured. Therefore this impact would be considered considerable under cumulative conditions.

Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. This impact for Alternative 3 could be mitigated similar to the proposed General Plan through the application of proposed policies and programs. However, buildout of Alternative 3 would theoretically result in slightly more residential units and people then the proposed General Plan, therefore resulting in increased impacts on County Road HH. As a result, the proposed project is the superior environmental alternative.

Result in increase demand for additional capacity on County Road 20 (Impact 4.13.9)

Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road 20. Until such time that the recommended improvements are programmed and funded, their implementation cannot be ensured. Therefore this impact would be considered considerable under cumulative conditions.

Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. This impact for Alternative 3 could be mitigated similar to the proposed General Plan through the application of proposed policies and programs. However, buildout of Alternative 3 would theoretically result in slightly more residential units and people then the proposed General Plan, therefore resulting in increased impacts on County Road 20. As a result, the proposed project is the superior environmental alternative.

Greenhouse Gases and Climate Change

Result in inconsistencies with greenhouse gas reduction numbers (Impact 5.0.1)

Subsequent land use activities associated with implementation of the proposed General Plan would result in the cumulative increase of greenhouse gases including CO_2 emitted into the atmosphere. However, the proposed General Plan would implement a number of policies that would complement and be consistent with the early emission reduction strategies contained in the California Climate Action Team's (CAT) Report to the Governor and Executive Order S-3-05. Implementation of the proposed General Plan would be consistent with state measures to reduce greenhouse gas emissions.

Alternative 3 would have a similar potential to include land uses that have the potential to produce additional greenhouse gas emission. This impact for Alternative 3 could be mitigated similar to the proposed General Plan through the application of proposed policies and programs, as well as compliance with California EPA Climate Action Team Greenhouse Gas Reduction Strategies. However, buildout of Alternative 3 would theoretically result in slightly more residential units and people then the proposed General Plan, therefore resulting in increased impacts on greenhouse gas emissions. As a result, the proposed project is the superior environmental alternative.

Result in the potential impacts to the City by the environmental effects of global climate change (Impact 5.0.2)

Implementation of the proposed General Plan could substantially increase emissions of GHGs over existing conditions that could result in environmental effects to the City. Based on consideration of the recent regional and local climate change studies, and based that the City's groundwater source is anticipated to largely remain intact, it is reasonably expected that the impacts of global climate change on the City would be less than cumulatively considerable.

Alternative 3 would have a similar potential to experience negative environmental effects as the proposed project. However, buildout of Alternative 3 would theoretically result in slightly more residential units and people then the proposed General Plan, therefore resulting in increased impacts on the effects of global climate change. As a result, the proposed project is the superior environmental alternative.

6.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA Guidelines Section 15126.6(e)(2) indicates that an environmentally superior alternative must be identified in a DEIR. Based on the summary of information presented in **Table 6.0-7,** the environmentally superior alternative to the proposed project is Alternative 2 – Secondary Sphere of Influence Alternative. Alternative 2 generally has reduced adverse impacts on the environment than the proposed project. However, Alternative 2 may not adequately meet proposed General Plan objectives related to growth. In addition, Alternative 2 may result in environmentally similar impacts than the proposed project in a number of areas. Under Alternative 2, the proposed General Plan Planning Area would be reduced as the southern Planning Area boundary would be located at Road 20 instead of Road 21. All lands south of Road 20 would maintain Glenn County land use designations and remain under County jurisdiction. However, it has been determined by the City that maintaining County land use designations and County control over these lands would not serve the overall community growth objectives sought by the City with respect to the preferred density, location, and intensity of land uses.

TABLE 6.0-7
COMPARISON OF PROJECT ALTERNATIVES TO THE PROPOSED GENERAL PLAN

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Aesthetics	**Project Impacts**	**B**	**B**	**W**
Alteration of the existing visual character. (Impact 4.1.1)	Would result in the alteration of visual resources associated with the urban landscape within the proposed Planning Area (PS)	Alternative 1 would reduce visual impacts by retaining less intensive land uses that are consistent with the existing rural/agricultural/ open space landscape characteristics. (PS)	Alternative 2 would allow for a slightly reduces level of urban development due to the reduced development area when compared to the proposed General Plan. As a result, this Alternative would have a reduced impact to visual character due to a smaller potential development area. (PS)	Urban development allowed under Alternative 3 would result in the potential for increased impacts to the visual character of the City by allowing mixed-use urban development in rural areas. The increased development intensity of Alternative 3, when compared to the proposed project, would have a increased impact to visual character. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Agricultural Resources	**Project Impacts**	**B**	**B**	**S**
Loss of agricultural land under project and cumulative conditions (Impact 4.2.1 and Impact 4.2.4)	As noted in Section 4.2 Agriculture, land use designation changes in the proposed General Plan results in a net decrease of over 2,937 acres for agriculturally designated lands to allow for increased growth opportunities. (S)	Alternative 1 would reduce farmland impacts as compared to the proposed General Plan by not expanding the Planning Area of the City beyond the current plan area. However, Alternative 1 would still allow for development on existing active farmland. (S)	Alternative 2 would reduce farmland impacts as compared to the proposed General Plan by not expanding the City's southern Planning Area boundary beyond Road 20. However, Alternative 2 would still allow for development on existing active farmland. (S)	As implementation of Alternative 3 would expand the City's Planning Area the same amount as planned by the proposed General Plan, Alternative 3 would have a similar impact regarding the loss of farmland as the proposed General Plan. (S)

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Level of Significance After Mitigation	**SUI under cumulative conditions**	**SUI under cumulative conditions**	**SUI under cumulative conditions**	**SUI under cumulative conditions**
Changes in existing land uses resulting in conversion of agricultural land (Impact 4.2.2)	It is anticipated that as the City's growing population increases, so to will the need for more residential, commercial and industrial development. Such growth may increase potential agriculture/urban interface conflicts as a result. (PS)	Alternative 1 would reduce farmland impacts as compared to the proposed General Plan by not expanding the Planning Area of the City beyond the current planning area. However, Alt. 1 would still allow for development on and adjacent to active agricultural operations. (PS)	Alternative 2 would result in similar, though reduced land use conflicts between urban/agricultural uses as implementation of Alternative 2 would not expand the City's Planning Area south of Road 20 as planned by the proposed General Plan. However, Alt. 2 would allow for development on and adjacent to active agricultural operations. (PS)	Alternative 3 would result in similar land use conflicts between urban/agricultural uses as the proposed project as implementation of Alternative 3 would expand the City's Planning Area the same amount as planned by the proposed General Plan. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Air Quality	**Project Impacts**	**B**	**S**	**W**
Contribution to air quality impacts (construction, operational and toxic air contaminants) under project and cumulative conditions (Impacts 4.3.2, Impact 4.3.3, Impact 4.3.4, and Impact 4.3.6)	Implementation of the proposed General Plan and the resulting development would increase the potential for additional mobile and stationary sources emissions, short-term construction emission, and toxic air contaminants which would adversely affect regional air quality. (S)	Alternative 1 would result in reduced air emissions compared with the General Plan as this alternative would accommodate a reduced amount of growth. (S)	Alternative 2 would have the potential to include land uses that would produce additional emissions and toxic air contaminants. However; Alternative 2 would result in less potential for development and population growth; therefore, this alternative would result in reduced impacts to air quality. (S)	Alternative 3 would theoretically result in slightly more residential units, people and non-residential development than the proposed General Plan therefore resulting in the potential emission of more air contaminants. (S)
Level of Significance After Mitigation	**(SU)**	**(SU)**	**(SU)**	**(SU)**

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Biological Resources	**Project Impacts**	**B**	**S**	**S**
Project and cumulative impacts to Special- Status Species, sensitive natural communities including jurisdictional waters, and effects on Wildlife Movement Corridors (Impact 4.4.1, Impact 4.4.2, Impact 4.4.3, Impact 4.4.4, and Impact 4.4.6)	Implementation of the proposed General Plan could result in a direct or indirect loss of habitat for, and individuals of, endangered, threatened and/or other special-status plant and animal species, in impacts to sensitive natural communities including jurisdictional waters, and could interfere substantially with the movement of wildlife. (PS)	Alternative 1 would be considered an environmentally better alternative than the proposed General Plan as the Planning Area would not be extended by approximately 2,289.1 acres of lands identified for urban development. (LTS)	Alternative 2 would result in similar potential for impacts to biological resources compared with the proposed General Plan as the extent of potential urban development is similar and the additional land areas of the project have limited species or jurisdictional waters potential. (PS)	Implementation of Alternative 3 would result in similar potential for impacts to biological resources compared with the proposed General Plan, as this alternative would experience similar land use changes and would result in urban level development. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Cultural Resources	**Project Impacts**	**B**	**B**	**S**
Potential destruction or damage to known and undiscovered prehistoric resources, historic resources, and human remains under project and cumulative conditions (Impact 4.5.1 and Impact 4.5.3)	Implementation of the proposed General Plan could result in the potential disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains due to the expansion of potential development area. (PS)	Implementation of Alternative 1 would result in a reduced potential for impacts to undiscovered cultural resources by retaining less intensive land uses and result in less development area when compared to the proposed project. (PS)	Implementation of Alternative 2 would result in a reduced potential for impacts to undiscovered cultural resources by not expanding the City's southern Planning Area boundary beyond Road 20 as planned by the proposed project. (PS)	Implementation of Alternative 3 would result in similar potential for impacts to undiscovered cultural resources due to the expansion of the City's Planning Area by the same amount as planned by the proposed project. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Result in impacts to paleontological resources under project and cumulative conditions (Impact 4.5.2 and Impact 4.5.4)	Future Construction activities associated with implementation of the proposed General Plan project could result in impacts to undiscovered paleontological resources due to the expansion of potential development area. (PS)	Implementation of Alternative 1 would result in a reduced potential for impacts to undiscovered paleontological resources by retaining less intensive land uses and result in less development when compared to the proposed project. (PS)	Implementation of Alternative 2 would result in a reduced potential for impacts to undiscovered paleontological resources by not expanding the City's southern Planning Area boundary beyond Road 20 as planned by the proposed project. (PS)	Implementation of Alternative 3 would result in similar potential for impacts to paleontological resources by expanding the City's Planning Area the same amount as planned by the proposed project. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Geology, Seismicity, Soils, and Hazardous Materials	**Project Impacts**	**S**	**S**	**S**
Result in the placement of structures and development in areas of seismic sensitivity (Impact 4.6.1)	Implementation of the proposed project may result in the placement of structures and development in areas of geologic sensitivity due to the expansion of potential development area. (PS)	Alternative 1 would result in similar impacts to the proposed project by allowing the placement of structures and development in areas of geologic sensitivity due to the continued growth of the City. (PS)	Alternative 2 would result in similar impacts to the proposed project by allowing the placement of structures and development in areas of geologic sensitivity due to the expansion of potential development area. (PS)	Alternative 3 would result in similar impacts to the proposed project by allowing the placement of structures and development in areas of geologic sensitivity due to the expansion of potential development area. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Potential increase of erosion and loss of topsoil (Impact 4.6.2)	Implementation of the proposed General Plan may result in an increase in soil erosion, wind and water erosion, and siltation of local drainages. (PS)	Alternative 1 may also result in substantial construction and site preparation activities, however not to the level of the proposed project due to Alternative 1's substantially less available land for residential development	Alternative 2 may also result in substantial construction and site preparation activities, however not to the level of the proposed project due to Alternative 2's lessened land availability for residential development (approximately 500 acres)	Alternative 3 may also result in substantial construction and site preparation activities and result in similar erosion and topsoil impacts due to the similar potential for future growth.

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
		compared with the proposed project. (PS)	compared with the proposed project. (PS)	(PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Potential development on unstable soils (Impact 4.6.3)	Implementation of the proposed General Plan may allow for development in areas with unstable soils. (PS)	Alternative 1 would be subject to the City standards regarding development on unstable soils identified in the California Building Code and the adopted General Plan policies. (PS)	Alternative 2 would be subject to the City standards regarding development on unstable soils identified in the California Building Code and the proposed General Plan policies. (PS)	Alternative 3 would be subject to the City standards regarding development on unstable soils identified in the California Building Code and the proposed General Plan policies. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Result in the release of hazardous materials (Impact 4.6.6)	Implementation of the proposed General Plan could result in the potential hazard to the public and the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (PS)	Alternative 1 contains the identical policies and programs regarding hazardous materials when compared with the proposed project. However, Alt. 1 would potentially decrease exposure to hazardous materials due to the reduced development footprint. (PS)	Alternative 2 contains the identical policies and programs as the proposed project regarding hazardous materials. Alternative 2 is considered to have similar hazardous material-related impacts than the proposed project as Alt 2 would allow for expanded growth opportunities. (PS)	Alternative 3 contains the identical policies and programs as the proposed project regarding hazardous materials. Alternative 3 is considered to have similar hazardous material-related impacts than the proposed project as Alt 3 would allow for expanded growth opportunities. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Hydrology and Water Quality	**Project Impacts**	**W**	**S**	**S**
Result in surface water quality impacts and cumulative water quality impacts (Impact 4.7.1, Impact 4.7.5)	Implementation of the proposed General Plan could result in an alteration of existing drainage, the discharge of polluted runoff, discharge that could cause harm to the biological integrity of waterways, adversely impact water quality standards, or otherwise substantially degrade surface water quality. (PS)	The proposed General Plan offers a greater level of protection through its policies and programs than Alternative 1. Therefore, the proposed project is a better environmental alternative. (PS)	Alternative 2 and the proposed General Plan offer a substantial level of protection through its policies and programs which results in a less than significant impact. Therefore, implementation of Alternative 2 would result in similar potential for surface water quality impacts. (PS)	Alternative 3 would experience similar land use changes and continued development which could result in similar potential for impacts to noise-sensitive in the City's Planning Area. Therefore, Alternative 3 would result in similar impacts as compared to the proposed General Plan. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Result in groundwater supply and quality impacts and cumulative water quality impacts (Impact 4.7.2, Impact 4.7.3, Impact 4.7.5)	Implementation of the proposed General Plan and the resultant increase in development could result in the degradation of groundwater quality and groundwater supply resulting from future land uses. (PS)	The proposed General Plan offers a greater level of protection through its policies and programs than Alternative 1. Therefore, the proposed project is a better environmental alternative. (PS)	Alternative 2 and the proposed General Plan offer a substantial level of protection through its policies and programs which results in a less than significant impact. Therefore, implementation of Alternative 2 would result in similar potential for groundwater quality impacts. (PS)	Alternative 3 proposes a similar mix of land uses as the proposed project. It is assumed that Alternative 3 would include policies that would reduce impacts to a less than significant level. Implementation of Alternative 3 would result in similar potential for groundwater quality impacts. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Result in drainage and flooding impacts (Impact 4.7.4)	Implementation of the proposed project could result in the	The proposed General Plan offers a greater level of protection through its policies and programs than Alternative	Alternative 2 and the proposed General Plan offer a substantial level of protection through its policies and programs which	Alternative 3 and the proposed General Plan offer an increased level of protection through its policies and programs which

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
	alteration of existing drainage patterns which may substantially increase the rate of amount of surface runoff in a manner which would result in flooding or exceedence of the capacity of existing or planned drainage systems. However, the proposed project provides policies and programs to address drainage and flooding impacts. (PS).	1. Therefore, the proposed project is a better environmental alternative. (PS)	results in a less than significant impact. Therefore, implementation of Alternative 2 would result in similar potential for drainage and flooding related impacts. (PS)	results in a less than significant impact. Therefore, implementation of Alternative 3 would result in similar potential for drainage and flooding related impacts. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Noise	**Project Impacts**	**B**	**B**	**S**
Result in noise-related impacts to noise-sensitive land uses (Impact 4.9.3)	Implementation of the proposed General Plan would result in future development of noise-producing land uses near noise-sensitive land uses. (PS)	Implementation of Alternative 1 would result in a reduced potential for impacts to noise-sensitive lands by retaining less intensive land uses. Therefore, Alternative 1 is considered to be an environmentally better alternative. (PS)	Implementation of Alternative 2 would result in a reduced potential for impacts to noise-sensitive land uses by not expanding the City's southern Planning Area boundary beyond Road 20. As ultimate buildout of Alternative 2 would result in less development when compared to the proposed General Plan (approximately 500 acres), Alternative 2 is considered to be an environmentally better alternative. (PS)	Alternative 3 would result in similar land use changes and continued development which could result in similar potential for impacts to noise-sensitive land uses by expanding development in the City's Planning Area. Therefore, Alternative 3 would result in similar impacts as compared to the proposed General Plan. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Result in significant increase in traffic noise levels at existing noise-sensitive areas within Orland (Impact 4.9.4)	Implementation of the proposed General Plan would result in significant increases in traffic noise levels at existing noise-sensitive areas within Orland. (S)	Implementation of Alternative 1 would result in a reduced potential for noise impacts as ultimate buildout of Alternative 1 would result in less development when compared to the proposed General Plan, Alternative 1 is considered to be an environmentally superior alternative. (S)	Implementation of Alternative 2 would result in a reduced potential for impacts to noise-sensitive land uses by not expanding the City's southern Planning Area boundary beyond Road 20. As ultimate buildout of Alternative 2 would result in less development when compared to the proposed General Plan (approximately 500 acres), Alternative 2 is considered to be an environmentally superior alternative. (S)	Implementation of Alternative 3 would result in similar land use changes and continued development which could result in similar potential for impacts to noise-sensitive land uses by expanding development in the City's Planning Area. Therefore, Alternative 3 would result in similar impacts as compared to the proposed General Plan. (S)
Level of Significance After Mitigation	**(SU)**	**(SU)**	**(SU)**	**(SU)**
Result in significant increases in ambient noise levels within Orland (Impact 4.9.6)	Implementation of the proposed General Plan would result in significant increases in traffic noise levels at existing noise-sensitive areas within Orland. (S)	Implementation of Alternative 1 would result in a reduced potential for noise impacts to noise-sensitive land uses by retaining less intensive land uses. As ultimate buildout of Alternative 1 would result in less development when compared to the proposed General Plan, Alternative 1 is considered to be an environmentally superior alternative. (LTS)	Implementation of Alternative 2 would result in a reduced potential for impacts to noise-sensitive land uses by not expanding the City's southern Planning Area boundary beyond Road 20. As ultimate buildout of Alternative 2 would result in less development when compared to the proposed General Plan (approximately 500 acres), Alternative 2 is considered to be an environmentally superior alternative. (S)	Implementation of Alternative 3 would result in similar potential for impacts to noise-sensitive land uses as the proposed project, as development would be expanded development in the City's Planning Area. Therefore, Alternative 3 would result in similar impacts as compared to the proposed General Plan. (S)
Level of Significance After Mitigation	**(SU)**	**(LTS)**	**(SU)**	**(SU)**

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Population and Housing	**Project Impacts**	**B**	**B**	**W**
Result in the increase of population and housing (Impact 4.10.1, 4.10.3)	Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the area. (S)	Under Alternative 1, fewer housing units would be built than under the proposed project. The lower number of housing units under Alternative 1 would result in a reduction of potential impacts when compared to the proposed project. (S)	Under Alternative 2, fewer housing units would be built than under the proposed project (approximately 1,000 fewer units). The lower number of housing units under Alternative 2 would result in a reduction of potential impacts when compared to the proposed project. (S)	Under Alternative 3, more housing units would be built than under the proposed project (approximately 316 more units). The increased number of housing units under Alternative 3 would result in a greater level of potential impacts when compared to the proposed project. (S)
Level of Significance After Mitigation	**(SUI)**	**(SUI)**	**(SUI)**	**(SUI)**
Community Services	**Project Impacts**	**S**	**B**	**W**
Result in fire protection and emergency medical services impacts under project and cumulative conditions (Impact 4.11.1.1, Impact 4.11.1.3)	Implementation of the proposed General Plan would increase the demand for fire protection and emergency medical services. (PS)	Alternative 1 is considered to have similar fire protection-related impacts than the proposed project, as this alternative would allow for the expansion of urban development. However, the proposed project offers an additional policies and programs which offer City government resources to aid fire service operation. (PS)	While Alternative 2 would have the same program and policies measures as the proposed project, it is considered to have reduced fire protection-related impacts than the proposed project as the extent of potential urban development within the Orland Planning Area would be reduced. (PS)	While Alternative 3 would have the same program and policy measures as the proposed project, it is considered to have greater fire protection-related impacts than the proposed project due to the increase in development density and intensity that would be allowed. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Result in impacts to police protection services under project and cumulative conditions (Impact 4.11.2.1, Impact 4.11.2.2)	Implementation of the proposed General Plan would increase the demand for police protection services, which would require additional staff and facilities. (PS)	Alternative 1 is considered to have greater police protection-related impacts than the proposed project as the proposed project offer several policies and programs which offer additional resources to aid police service operations (PS)	Alternative 2 is considered to have a reduced potential for police protection-related impacts given the extent of potential urban development within the Planning Area would be reduced. (PS)	Alternative 3 is considered to have greater police protection-related impacts than the proposed project as this Alternative would accommodate only a greater amount of growth. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Result in impacts to public school facilities under project and cumulative conditions (Impact 4.11.3.1, Impact 4.11.3.2)	Implementation of the proposed General Plan would increase demand for school services provided by the Orland Unified School District. (PS)	Alternative 1 would result in reduced public school demand as development under this Alternative would accommodate a reduced amount of growth. Alternative 1 would be considered an environmentally better alterative. (PS)	Alternative 2 is considered to have reduced public school-related impacts than the proposed General Plan as Alternative 2 would accommodate a reduced amount of growth. (PS)	Alternative 3 would result in more potential for development and population growth and would result in impacts to Orland's public school facilities. Alternative 3 is considered to have greater public school-related impacts than the proposed project. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Result in increased demand on existing parklands and recreation facilities under project and cumulative conditions (Impact 4.11.4.1, Impact 4.11.4.2)	Implementation of the proposed General Plan would encourage an increase in the local population, thereby leading to an increase in the use of existing park and recreation service facilities. (PS)	Alternative 1 would result in reduced physical impacts to the environment as development under this Alternative would accommodate a reduced amount of growth. (PS)	Alternative 2 would result in similar demand compared with the proposed project as development under this Alternative would accommodate a reduced amount of growth. (PS)	Alternative 3 would result in similar demand for recreation services compared with the proposed General Plan as development under this Alternative would accommodate only a slightly greater amount of growth. (PS)

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Public Services and Utilities	**Project Impacts**	**B**	**B**	**W**
Result in the need for additional water treatment capacity, storage capacity, and other conveyance facilities under project and cumulative conditions (Impact 4.12.1.1, Impact 4.12.1.2)	Implementation the proposed General Plan would require additional treatment capacity, storage capacity, and other conveyance facilities to meet the projected water demands (PS)	Alternative 1 would result in reduced physical impacts to the environment as development under this Alternative would accommodate a reduced amount of growth. Alternative 1 would be considered an environmentally better alternative. (PS)	Alternative 2 would result in reduced physical impacts to the environment as development under this Alternative would accommodate a reduced amount of growth compared with the proposed General Plan. Therefore, Alternative 2 would be considered an environmentally better alternative. (PS)	Implementation of Alternative 3 would result in increased physical impacts to the environment as development under this Alternative would accommodate a more growth. Therefore, the proposed project would be considered an environmentally better alternative compared with Alternative 3. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Substantially increase wastewater flows and require additional infrastructure (Impact 4.12.2.1, Impact 4.12.2.2)	Implementation of the proposed General Plan would increase wastewater flows and require additional infrastructure and require additional treatment capacity to accommodate anticipated demands that would result in a physical effect on the environment. (PS)	Alternative 1 would result in less population growth. Therefore the demand for treatment facilities is not as great as the proposed project. As a result, Alternative 1 is the better environmental alternative. (PS)	Alternative 2 would result in less population growth by approximately 3,000 people at buildout and therefore the demand for treatment facilities is not as great as the proposed project. As a result, Alternative 2 is the better environmental alternative. (PS)	Alternative 3 would result in more population growth by approximately 471 additional people at buildout compared with the proposed General Plan. As a result, the proposed project is the better environmental alternative. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Increase storm water runoff rates generated within and downstream of the proposed	New development associated with implementation of the proposed General Plan would	Alternative 1 would result in less population growth. Therefore the demand for	Alternative 2 would result in less population growth by approximately 3,000 people at	Alternative 3 would result in more population growth by approximately 471 additional

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Planning Area and require additional infrastructure under project and cumulative conditions (Impact 4.12.3.1, Impact 4.12.3.2)	increase storm water runoff rates generated within and downstream of the proposed Planning Area when compared with existing conditions and require additional infrastructure to accommodate anticipated demands that would result in a physical effect on the environment. (PS)	storm water facilities is not as great as the proposed project. As a result, Alternative 1 is the better environmental alternative. (PS)	buildout; therefore the demand for storm water facilities is not as great as the proposed project. As a result, Alternative 2 is the better environmental alternative. (PS)	people at buildout compared with the proposed General Plan. Therefore the demand for storm water facilities is greater when compared with the proposed project. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Result in an increase in solid waste generation and the demand for related services under project and cumulative conditions (Impact 4.12.4.1. Impact 4.12.4.2)	Implementation of the proposed General Plan would increase solid waste generation and the demand for related services. (PS)	Alternative 1 would result in less population growth. Therefore the demand for disposal facilities is not as great as the proposed project. As a result, Alternative 1 is the better environmental alternative. (PS)	The demand for disposal facilities is not as great under Alternative 2 as the proposed project. As a result, Alternative 2 is the better environmental alternative. (PS)	Alternative 3 would result in more population growth compared with the proposed General Plan. Therefore the demand for disposal facilities is greater than the proposed project.
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Substantially increase demand for electrical, natural gas, telephone and related infrastructure under project and cumulative conditions (Impact 4.12.5.1, Impact 4.12.5.2)	Implementation of the proposed General Plan would substantially increase demand for electrical, natural gas, telephone and related infrastructure. (PS)	Alternative 1 would result in less population growth. Therefore the demand for these facilities is not as great as the proposed project. As a result, Alternative 1 is the better environmental alternative. (PS)	Alternative 2 would result in less population growth. Therefore the demand for these facilities is not as great as the proposed project. (PS)	Alternative 3 would result in more population growth than the proposed General Plan and therefore the demand for these facilities is greater than the proposed project. (PS)

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Transportation and Circulation	**Project Impacts**	**B**	**S**	**W**
Result in increased traffic volumes on local intersection (Impact 4.13.1)	Implementation of the proposed General Plan would result in increased traffic volumes and a decrease in LOS on area intersections. (PS)	Implementation of Alternative 1 would result in reduced traffic as development under this Alternative would accommodate a reduced amount of growth, thus resulting in less traffic (12,114 residential units and 35,077 people at buildout compared with 16,210 residential units and 45,940 people at buildout under the proposed General Plan). Therefore, Alternative 1 would be considered an environmentally better alternative. (LTS)	Alternative 2 would have a similar potential to include land uses that produce additional traffic. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in impacts to transportation facilities. (PS)	Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. Buildout of Alternative 3 would theoretically result in more residential units and people then the proposed General Plan therefore resulting increased impacts in traffic. (PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Result in increase traffic volumes on local roadways (Impact 4.13.2)	Implementation of the proposed General Plan would result in increased traffic volumes and a decrease in LOS on area roadways. (PS)	While Alternative 1 would result in less potential for development and population growth, this alternative would still result in impacts to local roadways, however, implementation of Alternative 1 would result in reduced traffic. Development under this Alternative would accommodate a reduced amount of growth, thus	Alternative 2 would have a similar potential to include land uses that produce additional traffic. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in impacts to transportation facilities. (PS)	Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. Buildout of Alternative 3 would theoretically result in more residential units and people then the proposed General Plan therefore resulting in increased impacts to traffic.

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
		resulting in less traffic. (PS)		(PS)
Level of Significance After Mitigation	**(LTS)**	**(LTS)**	**(LTS)**	**(LTS)**
Result in increased traffic volumes on State Route (SR) 32 through the year 2028 and beyond the General Plan 20-year planning horizon (Impact 4.13.6)	Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase traffic volumes on SR 32 through the year 2028 and beyond the General Plan 20-year planning horizon. (PS)	Alternative 1 would result in less potential for development and population growth. While this alternative would still result in impacts to SR 32, implementation of Alternative 1 would result in reduced traffic. Development under this Alternative would accommodate a reduced amount of growth, thus resulting in less traffic. (PS)	Alternative 2 would have a similar potential to include land uses that produce additional traffic. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in impacts to transportation facilities. (PS)	Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. Buildout of Alternative 3 would theoretically result in more residential units and people then the proposed General Plan therefore resulting in increased impacts to traffic. (PS)
Level of Significance After Mitigation	**(SU)**	**(SU)**	**(SU)**	**(SU)**
Result in increase demand for additional east-west roadway capacity (Impact 4.13.7)	Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional east-west roadway capacity. (PS)	Alternative 1 would result in less potential for development and population growth. While this alternative would still result in impacts to east-west roadway capacity, implementation of Alternative 1 would result in reduced traffic. Development under this Alternative would accommodate a reduced amount of growth, thus resulting in less traffic. (PS)	Alternative 2 would have a similar potential to include land uses that produce additional traffic. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in impacts to transportation facilities. (PS)	Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. Buildout of Alternative 3 would result in more residential units and resulting in increased impacts to traffic. (PS)

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Level of Significance After Mitigation	**(SU)**	**(SU)**	**(SU**	**(SU)**
Result in increase demand for additional capacity on County Road HH (Impact 4.13.8)	Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road HH. (PS)	Alternative 1 would result in less potential for development and population growth. While this alternative would still result in impacts to County Road HH capacity, implementation of Alternative 1 would result in reduced traffic. Development under this Alternative would accommodate a reduced amount of growth, thus resulting in less traffic. (PS)	Alternative 2 would have a similar potential to include land uses that produce additional traffic. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in impacts to transportation facilities. (PS)	Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. Buildout of Alternative 3 would result in more residential units and resulting in increased impacts to traffic. (PS)
Level of Significance After Mitigation	**(SU)**	**(SU)**	**(SU)**	**(SU)**
Result in increase demand for additional capacity on County Road 20 (Impact 4.13.9)	Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road 20 (PS)	Alternative 1 would result in less potential for development and population growth. While this alternative would still result in impacts to County Road 20 capacity, implementation of Alternative 1 would result in reduced traffic. Development under this Alternative would accommodate a reduced amount of growth, thus resulting in less traffic. (PS)	Alternative 2 would have a similar potential to include land uses that produce additional traffic. While Alternative 2 would result in less potential for development and population growth, this alternative would still result in impacts to transportation facilities. (PS)	Alternative 3 would have a similar potential to include land uses that have the potential to produce additional traffic to the Planning Area. Buildout of Alternative 3 would result in more residential units and resulting in increased impacts to traffic. (PS)

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
Level of Significance After Mitigation	**(SU)**	**(SU)**	**(SU)**	**(SU)**
Greenhouse Gases and Climate Change	**Project Impacts**	**W**	**S**	**W**
Result in inconsistencies with greenhouse gas reduction numbers (Impact 5.0.1).	Subsequent land use activities associated with implementation of the proposed General Plan, would result in the cumulative increase of greenhouse gases including CO_2 emitted into the atmosphere as well as implement a number of policies that would complement and be consistent with the early emission reduction strategies contained in the California Climate Action Team's (CAT) Report to the Governor and Executive Order S-3-05. (LTS)	While Alternative 1 would result in less potential for development and population growth, this alternative would still result in impacts to the global climate. While implementation of Alternative 1 would result in reduced GHG emissions, the proposed project offers a greater level of protection through its policies and programs which results in a less than significant impact. (LTS)	Alternative 2 would have a similar potential to include land uses that have potential to produce additional greenhouse gas emissions. While Alternative 2 would result in less potential for development and population growth, this alternative would result in increased impacts to greenhouse gas emissions. (LTS)	Alternative 3 would have a similar potential to include land uses that have the potential to produce additional greenhouse gas emission. However, buildout of Alternative 3 would theoretically result in more residential units and people then the proposed General Plan therefore resulting in increased impacts to greenhouse gas emissions. (LTS)
The impacts of global climate change would cumulatively result in the potential impacts to the City (Impact 5.0.2).	Implementation of the proposed General Plan could substantially increase emissions of GHGs over existing conditions that could result in environmental effects to the City. (LTS)	While Alternative 1 would result in less potential for development and population growth, this alternative would still result in impacts to global climate. While implementation of Alternative 1 would result in reduced GHG emissions, the proposed project offers a greater level of protection through its policies and programs which results in a less than significant impact.	Alternative 2 would have a similar potential to include land uses that have potential to produce additional greenhouse gas emissions. While Alternative 2 would result in less potential for development and population growth, this alternative would result in impacts to increased greenhouse gas emissions. (LTS)	Alternative 3 would have a similar potential to experience negative environmental effects as the proposed project. However, buildout of Alternative 3 would theoretically result in more residential units and people then the proposed General Plan therefore resulting in increased impacts to the effects of global climate change. (LTS)

Environmental Categories	Proposed General Plan (Impact Significance)	No Project Alternative – Alternative 1 (Impact Significance)	Secondary Sphere of Influence Alternative - Alternative 2 (Impact Significance)	County General Plan Alternative - Alternative 3 (Impact Significance)
		(LTS)		

Notes: B = Better, S = Same, W = Worse
(LTS = Less than Significant) (PS = Potentially Significant) (S = Significant) (SU = Significant and Unavoidable Impact)

A quantitative comparison is provided, where available, for impacts that were analyzed in Sections 4.1 through 4.13 of the Draft EIR. No quantitative data was available for Human Health/Risk of Upset, Hydrology and Water Quality, Geology and Soils, and Cultural, Paleontological Resource, or Visual Resources. The classifications of B, S and W were based on available quantitative and qualitative information for the proposed General Plan and the three alternatives.

7.0 Other Sections Required by CEQA

This section discusses the additional topics statutorily required by CEQA. The topics discussed include significant irreversible environmental changes/irretrievable commitment of resources, significant and unavoidable environmental impacts, and growth-inducing impacts.

7.1 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL EFFECTS

Public Resources Code Sections 21100(b)(2) and 21100.1(a) require that an EIR prepared for the adoption of a plan, policy, or ordinance of a public agency must include a discussion of significant irreversible environmental changes of project implementation. CEQA Guidelines Section 15126.2(c) describes irreversible environmental changes as follows:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Implementation of the proposed City of Orland General Plan would result in the conversion of undeveloped open space and agricultural lands located in unincorporated Glenn County to urban land uses. Development of the proposed Planning Area would constitute a long-term commitment to urban land uses. It is unlikely that circumstances would arise that would return any developed land to its original undeveloped condition. Therefore, conversion of open space and agricultural land to urban development is considered a significant irreversible environmental effect.

Development of the City of Orland Planning Area would irretrievably commit building materials and energy to the construction and maintenance of buildings and infrastructure proposed. Renewable, nonrenewable, and limited resources that would likely be consumed as part of development would include oil, gasoline, lumber, sand and gravel, asphalt, water, steel, and other similar materials. Many of these materials would be consumed during development activities, and therefore cannot be reused or recycled. It is possible that some building materials could be recycled or salvaged, such as glass and aluminum.

In addition, implementation of development under the proposed General Plan would result in an increased demand on traffic volumes on three roadway segments would increase substantially from existing conditions to 2028 conditions under the proposed General Plan (see Section 4.13, Transportation and Circulation). The following three roadway segments would operate at unacceptable LOS.

- SR 32 (Walker Street), east of 6th Street;
- SR 32 (Walker Street), east of Papst Avenue; and
- SR 32 (Walker Street), east of County Road N.

The large majority of the increase in traffic volumes would be due to an increase in regional through trips – traffic not related to land use development in Orland. If, hypothetically, there was no future land use development in Orland, these three roadway segments would operate at unacceptable LOS in the future because of the increase in regional through trips. Conversely, if there was no future increase in regional through trips, these three roadway segments would operate at acceptable LOS in the future even with future land use development in Orland.

7.2 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL EFFECTS

CEQA Guidelines Section 15126.2(b) requires an EIR to discuss unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance. In addition, Section 15093(a) of the CEQA Guidelines allows the decision-making agency to determine the benefits of a proposed project outweigh the unavoidable adverse environmental impacts of implementing the project. The City can approve a project with unavoidable adverse impacts if it prepares a "Statement of Overriding Considerations" setting forth the specific reasons for making such a judgment.

The reader is referred to the various environmental issue areas of Section 4.0, 5.0 and 6.0 for further details and analysis of the significant and unavoidable impacts identified below.

Section 4.2 Agricultural Resources

Loss of Agricultural Land

Impact 4.2.1 Implementation of the proposed General Plan would result in the loss of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as designated under the Farmland Mapping and Monitoring Program. Implementation of mitigation measure **MM 4.2.1** would reduce the impact of the loss of important farmland by compensating for any loss due to development by protecting regional farmlands, in kind, from conversion to non-agricultural uses; however, not to a less than significant level. Therefore, this impact is considered **significant and unavoidable**.

See additional discussion for Impact 4.2.1 in Section 4.2, Agricultural Resources.

Changes in Existing Land Uses Resulting in the Conversion of Agricultural Land

Impact 4.2.2 Implementation of the proposed General Plan could create conflicts between existing agricultural and future urban development within the proposed Planning Area and with land uses adjacent to the proposed Planning Area. General Plan policies and programs would reduce pressure on adjoining lands to convert to non-agricultural uses, and implementation of the proposed General Plan minimizes or avoids potential conflicts between land uses within the proposed Planning Area yet not at a level that is less than significant. Therefore, this impact is considered to be **significant and unavoidable.**

See additional discussion for Impact 4.2.2 in Section 4.2, Agricultural Resources.

Cumulative Impacts to Agricultural Land

Impact 4.2.4 Implementation of the proposed General Plan, in addition to existing, proposed, approved, and reasonably foreseeable development in Glenn County, would contribute to cumulative land conflicts. Implementation of proposed General Plan policies, programs, and the mitigation measure described under Impacts 4.2.1 through 4.2.3 would reduce the proposed General Plan's contribution to cumulative impacts to agricultural resources. However, implementation of the General Plan Land Use Diagram would still contribute incrementally to substantial cumulative impacts on agricultural

resources in the region as a result of urban development. This impact is **cumulatively considerable** and is considered a **significant and unavoidable** impact.

See additional discussion for Impact 4.2.4 in Section 4.2, Agricultural Resources.

Section 4.3 Air Quality

Short-Term Emissions from Grading and Construction

Impact 4.3.2 Subsequent land use activities associated with implementation of the proposed General Plan may result in short-term emissions generated by construction and demolition activities that would affect local air quality and could result in health and nuisance-type impacts in the immediate vicinity of individual construction sites as well as contribute to particulate matter and regional ozone impacts. Implementation of proposed General Plan policies and mitigation measure **MM 4.3.2** would reduce potential construction-related air quality impacts. However, these actions would not fully offset air pollutant emissions resulting from construction activities. Thus, this impact is considered **significant and unavoidable**.

See additional discussion for Impact 4.3.2 in Section 4.3, Air Quality

Operational Air Pollutants

Impact 4.3.3 Negative air quality impacts associated with long-term emissions from projected growth over the planning horizon of the proposed General Plan may result in violations of ambient air quality standards. Subsequent land use activities associated with implementation of the proposed General Plan may result in an increase in population. This increase would introduce additional mobile and stationary sources of emissions, which would adversely affect regional air quality. Glenn County, which includes the City, is designated nonattainment for the California PM_{10} standard. Principal sources of PM_{10} include fuel burned in cars and trucks, power plants, factories, fireplaces, agricultural activities, and wood stoves. Implementation of the proposed General Plan would result in increased regional emissions of PM_{10} as well as ROG, NO_x, and CO due to increased use of motor vehicles, natural gas, burning activities, maintenance equipment, and various consumer products, thereby increasing potential operational air quality impacts. Expansion of the City's Planning Area under the proposed General Plan would result in a projected 2028 population of approximately 12,286 persons, an increase of 4,933 persons over the existing population. Potential emissions resulting from this growth scenario are estimated to be 569.71 tons of ROG, 628.38 tons of NO_x, and 771.33 tons of PM_{10} per year through the year 2028. Implementation of proposed General Plan policies and mitigation measures identified under **Impact 4.3.3** would reduce potential mobile and stationary source air quality impacts. While the proposed policies and mitigation measures would assist in reducing the stationary and mobile air quality impacts generated by subsequent land use activities associated with implementation of the proposed General Plan, it would not offset these pollution increases. For these reasons, the impact is considered **significant and unavoidable**.

See additional discussion for Impact 4.3.3 in Section 4.3, Air Quality

Exposure to Toxic Air Contaminants

Impact 4.3.4 Subsequent land use activities associated with implementation of the proposed General Plan may result in projects that would include sources of toxic air contaminants which may affect surrounding land uses and/or place sensitive land uses near existing sources of toxic air contaminants. The type and level of TACs are dependent on the nature of the land use, individual facilities, and the methods and operations of particular facilities. While the issuance of Glenn County Air Pollution Control District air quality permits, compliance with all District, state and federal regulations regarding stationary and TACs, and the use of Best Available Control Technology reduce potential stationary sources toxic air emissions, mobile sources of TAC emissions in Glenn County are primarily associated with the operation of school buses and diesel-powered delivery trucks associated with roadways and commercial, retail, and industrial uses. Implementation of proposed policy and mitigation measure identified under **Impact 4.3.4** would reduce potential stationary, mobile, and construction TAC source impacts. However, these actions would not fully offset TAC source emissions or exposure from mobile sources from roadways. Thus, this impact is considered **significant and unavoidable**.

See additional discussion for Impact 4.3.4 in Section 4.3, Air Quality

Regional Air Quality Impacts

Impact 4.3.6 Implementation of the proposed General Plan along with potential development of the Planning Area would exacerbate existing regional problems with ozone and particulate matter. Over the life of the proposed General Plan some of the policies may result in substantial new development and increased population that would in turn adversely impact regional air quality. Buildout of the proposed General Plan would allow for the potential construction of approximately 4,096 dwelling units and 357 acres of commercial, industrial, and office uses over the existing 2003 General Plan buildout conditions. The growth in population and business activity, along with the corresponding increase in vehicle usage, when considered with growth proposed under the proposed General Plan, would contribute to cumulative regional air quality impacts. It also could potentially delay attainment of standards for which counties in the NSVAB currently are in nonattainment status, mainly ozone and PM_{10}. Implementation of the proposed General Plan policies, programs and mitigation measures identified under **Impact 4.3.1** through **Impact 4.3.5** would assist in reducing the General Plan's contribution to cumulative regional and local air quality impacts; however, this contribution is still considered **cumulatively considerable** and thus a **significant and unavoidable** impact.

See additional discussion for Impact 4.3.6 in Section 4.3, Air Quality

Section 4.9 Noise

Current Noise-Sensitive Land Uses

Impact 4.9.4 Implementation of the proposed General Plan would result in significant increases in traffic noise levels at existing noise-sensitive areas within Orland. It is recognized that the proposed General Plan policies identified under **Impacts 4.9.2** and **4.9.3** as well as mitigation measure **MM 4.9.4**, used individually or collectively, can result in a reduction of traffic noise levels at affected sensitive receptor locations. Although a combination of the listed measures could be highly effective in reducing traffic noise levels on a Citywide basis, it is not possible to state with absolute certainty that it would be possible to mitigate this impact at every noise-sensitive use within the City. As a result, this impact would remain **significant and unavoidable**.

Cumulative Increase of Ambient Traffic Noise Levels

Impact 4.9.6 Implementation of the proposed General Plan would result in significant increases in noise levels within Orland. Buildout of the City Planning Area under the proposed General Plan would result in greater traffic volumes on City roadways than exist today. The greater traffic volumes would result in increased traffic noise on City roadways. Despite the implementation of such a noise abatement program, it is infeasible to ensure that existing residential uses will not be exposed to future traffic noise levels exceeding the City's noise standards or significantly exceeding levels they are exposed to today. As a result, this impact would remain **cumulatively considerable** and thus **significant and unavoidable**.

See additional discussion for Impact 4.9.4 in Section 4.9, Noise

Section 4.10 Population and Housing

Substantial Increase in Population and Housing

Impact 4.10.1 Implementation of the proposed General Plan would include an increase in land uses that promote the increase in population and housing to the area. The proposed General Plan will increase the population to the area and it does not contain any policies which would limit population growth. Because of this, the implementation of the proposed General Plan will result in a **significant and unavoidable** impact.

See additional discussion for Impact 4.10.1 in Section 4.10, Population and Housing

Cumulative Population and Housing Growth

Impact 4.10.3 Implementation of the proposed General Plan, in addition to existing, proposed, approved, and reasonably foreseeable development in the area, could result in a cumulative increase in population and housing growth in the City and associated environmental impacts. The DEIR contains mitigation measures where appropriate to reduce or eliminate potentially significant impacts associated with population growth in the City. While the proposed General Plan contains policies that would help offset the effects of population

growth, there are no measures that would completely mitigate the environmental effects of population growth under cumulative conditions. Even with implementation of proposed General Plan policies and mitigation measures, environmental impacts would remain significant, as population growth will inevitably occur and housing and other services would need to be provided to accommodate this growth. Therefore, impacts related to population growth would be **cumulatively considerable** and **significant and unavoidable**.

See additional discussion for Impact 4.10.3 in Section 4.10, Population and Housing

Section 4.13 Transportation

State Route 32

Impact 4.13.6 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase traffic volumes on SR 32 through the year 2028 and beyond the General Plan 20-year planning horizon. The long term post-2028 increase in traffic volumes on SR 32 would adversely affect traffic operations. Implementing Program 3.3.C.1, Policy 3.4.B, and mitigation measure **MM 4.13.6** as well as the improvements recommended by Caltrans in the *Transportation Concept Report State* Route *32* would reduce this impact; however, until such time that the improvements identified in the *Transportation Concept Report State Route 32* are programmed and funded their implementation cannot be ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

East-West Roadways

Impact 4.13.7 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional east-west roadway capacity. However, until such time that the right-of-way along the County Road 18 corridor is able to be reserved by the City and the recommended quantitative analysis and subsequent improvements are programmed and funded, their implementation cannot be ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

County Road HH

Impact 4.13.8 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional capacity on County Road HH. In order to reduce this impact to a less than significant level, realigning County Road HH and County Road 14 would be required as well as locating the intersection of County Road HH and County Road 16 a minimum of 500 feet away from the intersection of South Street (County Road 16) and I-5 southbound ramps. Mitigation measure **MM 4.13.6** states that the City shall participate in regional roadway facility improvement programs established by Glenn County and/or Caltrans in order to address its fair-share of traffic impacts. Until such time that these improvements are programmed and funded, their implementation cannot be

ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

County Road 20

Impact 4.13.9 Implementation of the proposed General Plan along with potential development outside of the City Planning Area would increase demand for additional roadway capacity on County Road 20. To reduce this impact to a less than significant level, the City should reserve right-of-way along the County Road 20 corridor as land use development occurs in the corridor. The right-of-way should be wide enough for a four-lane roadway and should include enough right-of-way for an interchange at I-5. In the future, as more is known about the size and nature of development in the corridor, quantitative analysis should be conducted to identify the specific improvements that should be implemented. Mitigation measure **MM 4.13.6** states that the City shall participate in regional roadway facility improvement programs established by Glenn County and/or Caltrans in order to address its fair-share of traffic impacts. Until such time that these actions are programmed and funded their implementation cannot be ensured. Therefore this impact would be considered **cumulatively considerable** and **significant and unavoidable.**

7.3 GROWTH-INDUCING IMPACTS

INTRODUCTION

The California Environmental Quality Act (CEQA) Guidelines Section 15126.2(d) requires that an EIR evaluate the growth-inducing impacts of a proposed action. A growth-inducing impact is defined by the CEQA Guidelines as follows:

> The way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth…It is not assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can have direct and/or indirect growth inducement potential. Direct growth inducement would result if a project, for example, involved construction of new housing. A project would have indirect growth inducement potential if it established substantial new permanent employment opportunities (e.g., commercial, industrial or governmental enterprises) or if it would involve a construction effort with substantial short-term employment opportunities that would indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. A project providing an increased water supply in an area where water service historically limited growth could be considered a growth-inducing project.

The CEQA Guidelines further explain that the environmental effects of induced growth are considered indirect impacts of the proposed action. These indirect impacts or secondary effects of growth may result in significant, adverse environmental impacts. Potential secondary effects of growth include increased demand on other community and public services and infrastructure, increased traffic and noise, and adverse environmental impacts such as degradation of air and water quality, degradation or loss of plant and animal habitat, and

conversion of agricultural and open space land to developed uses. Growth inducement also may constitute an adverse impact if the growth is not consistent with or accommodated by the land use plans and policies for the area affected. Local land use plans set forth land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services.

COMPONENTS OF GROWTH

The timing, magnitude, and location of land development and population growth in a community or region are based on various interrelated land use and economic variables. Key variables include regional economic trends, market demand for residential and non-residential uses, land availability and cost, the availability and quality of transportation facilities and public services, proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions. Since the general plan of a community defines the location, type and intensity of growth, it is the primary means of regulating development and growth in California.

GROWTH EFFECTS OF THE PROJECT

Based on Government Code Section 65300, the proposed General Plan is intended to serve as the overall plan for the physical development of Orland. While the proposed General Plan does not specifically propose any development projects, it does regulate future population and economic growth of the City that would result in indirect growth-inducing effects.

Implementation of the proposed General Plan would refine existing land use designations in the City and establish new policies, programs and design guidelines to guide and manage future development and land uses in the City. This would also include policy direction on roadway facility improvements, public service improvements and the extension and expansion of utilities. The subsections in Section 4.0 discuss the specific environmental effects resulting from the proposed land use patterns and associated extension of public services, by environmental issue. If the proposed General Plan were to result in full buildout of the proposed land uses, 16,419 residential units and a population of approximately 46,513 would result. However, as discussed in Section 4.0, this growth is not likely to occur within the proposed General Plan planning period.

As such, a number of growth projections were analyzed which resulted in a determination of the highest growth scenario for the planning period. In order to anticipate the number of housing units and population in Orland in the year 2028, three growth rates were used to develop estimates. The "High" growth rate is a 2.6 percent average annual growth rate, which was the growth rate of the City's population from 1970 to 2000. The "Medium" rate is a 2.2 percent average growth rate, which was the growth rate of the City's population from 1990 to 2000, the most recent years. The "Low" growth rate is a 1.8 percent average annual growth rate. This was an arbitrarily selected rate, which was obtained by subtracting the Medium rate from the High rate, then subtracting the difference from the Medium rate. Based on the high, medium, or low growth rate scenarios, the 2028 City population may reach 12,286, 11,363, or 10,506 respectively. This represents a potential increase of population over existing conditions of 4,933 under the high growth rate, 4,010 under the medium growth rate, and 3,153 under the low growth rate.

As described above, the proposed General Plan would induce further population and job growth in the City. The proposed General Plan could indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. Proposed roadway improvements would support such growth within the City's Planning Area. The proposed General Plan also would encourage the development of infrastructure, including extension of infrastructure into unserved areas, to support the projected

development. As a result, the proposed General Plan is considered to be growth-inducing. Sections 4.1 through 4.13 of this DEIR address the environmental effects of this growth within the City's Planning Area.

It is anticipated that agricultural areas within the proposed Planning Area may be pressured to develop, if adjacent lands are developed and infrastructure extended under the proposed project. In addition, the extension of infrastructure and would place growth pressure on adjoining land areas.

SECONDARY EFFECTS OF GROWTH

This DEIR discusses the environmental effects associated with the implementation of the project. Environmental effects of growth on adjacent properties resulting in conversion of existing land uses especially on lands beyond the City's proposed Planning Area would be similar to those associated with the proposed project evaluated in Sections 4.1 through 4.13, which includes impacts associated with traffic, noise, air quality, hydrology and water quality, hazards, public services, utilities and services, cultural resources, geological resources, biological resources, land use, population and housing, agricultural resources and visual resources. However, this growth would further contribute to these local and regional environmental impacts beyond the effects of the project.

8.0 REPORT PREPARERS

CITY OF ORLAND

City Manager ..... Paul H. Poczobut Jr.
City Attorney ..... Thomas N. Andrews
Director of Public Works ..... Jere Schmitke
Director of Community Services ..... Nancy Sailsbery

PMC

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Environmental Planner ..... Lana Adler
Environmental Planner ..... Seth Myers
Environmental Planner ..... Dustin Granville

KD ANDERSON TRANSPORTATION ENGINEERS – TRAFFIC CONSULTANT

Principal ..... Ken Anderson

BOLLARD ACOUSTICAL CONSULTANTS, INC. – NOISE CONSULTANT

Principal ..... Paul Bollard

APPENDICES

APPENDIX A CITY OF ORLAND NOTICE OF PREPARATION OF THE GENERAL PLAN

CITY OF ORLAND
NOTICE OF PREPARATION OF THE
GENERAL PLAN
2008- 2028

Prepared for:
CITY OF ORLAND
815 Fourth Street
Orland, CA 95963

Prepared by:

PMC®
140 Independence Circle, Suite C
Chico, CA 95973
530-894-3469
Fax: 530-894-6459
www.pmcworld.com

Notice prepared:

OCTOBER 2008

1.1 INTRODUCTION AND REGULATORY GUIDANCE

This document is a Notice of Preparation (NOP), which supports the decision by the City of Orland to prepare a Programmatic Environmental Impact Report (EIR) for the proposed project known as the *City of Orland General Plan 2008-2028*. This Notice of Preparation has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 *et seq*., and the State CEQA Guidelines, California Code Regulations Section 15000 *et seq*.

1.2 LEAD AGENCY

According to the CEQA guidelines, the Lead Agency is the public agency with primary responsibility over a proposed project. Where two or more public agencies will be involved with a project, the CEQA Guidelines Section 15051 provides criteria for identifying the lead agency. In accordance with the CEQA Guidelines Section 15051(b)(1), "The lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." Based on the above criteria, the City of Orland (City) is the lead agency for this proposed project.

1.3 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this NOP is to evaluate the potential environmental impacts of the proposed project and discuss the scope of review that will occur in the EIR. This NOP contains the following sections:

1.0 Introduction - This section provides an introduction and describes the purpose and organization of this NOP.

2.0 Project Information - This section provides a summary of the update of the General Plan as proposed by this project.

3.0 Environmental Issues - This section describes the environmental subject areas that will be discussed in the EIR.

4.0 Determination - This section provides the environmental determination for the project, identifying that an environmental impact report will be prepared for the project.

1. Project Title:	The City of Orland General Plan 2008-2028 Update
2. Lead Agency Name and Address:	City of Orland 815 4th Street Orland, CA 95963
3. Contact Person and Phone Number:	Nancy Sailsbery, Director of Development Services (530) 865-1600
4. Project Location:	City of Orland, Glenn County, California (see **Figure 2-1**). Latitude 39°44'44.0 N, Longitude 122°11'31.0 W
5. General Plan & Zoning	The proposed project involves a number of General Plan land use designations. See text under land use.
6. Summary of Project: (See Section 2.0 for detail of Project Description)	The purpose of the City of Orland General Plan update is to review and revise the 2002 General Plan, to reflect upon changing conditions and issues, and to provide a direction for the future growth of the City in the next twenty years.
7. Surrounding Land Uses and Setting:	Surrounding areas include the unincorporated area of Glenn County. (See Text)

8. Environmental Factors Potentially Affected:
The environmental factors checked below would be potentially affected by this project.

☒ Aesthetics	☒ Hazards/Hazardous Materials	☒ Public Services
☒ Agricultural Resources	☒ Hydrology/Water Quality	☒ Recreation
☒ Air Quality	☒ Land Use and Planning	☒ Transportation/Circulation
☒ Biological Resources	☒ Mineral Resources	☒ Utilities and Service Systems
☒ Cultural Resources	☒ Noise	☒ Mandatory Findings of Significance
☒ Geology and Soils	☒ Population and Housing	

9. Public Comment Period: Friday, October 10, 2008 through Friday, November 7, 2008.

2.1 EXISTING CONDITIONS

The City of Orland is located in Glenn County in northern California, within the Sacramento Valley. It is located approximately 16 miles north of Willows, the County seat of Glenn County, and approximately 22 miles west of the City of Chico. Interstate 5 passes along the western boundary of Orland, while State Route 32 goes through the center of the City on its way east towards Chico in Butte County. See **Figure 2-1, Regional Map** for project location. The Orland City limits encompass approximately 2.93 square miles, while the Planning Area covered by the proposed General Plan is approximately 6.42 square miles. According to the 2000 U.S. Census, the population of Orland was 6,281 in 2000. As of 2007, the City had an estimated population of 7,189.

2.1.2 PROJECT SUMMARY

The first City of Orland General Plan was completed in 1974. Certain elements, such as Land Use and Circulation, were updated in 1991, 1993, and 1994. In 2000, minor revisions to the General Plan were completed. In October 2003, the City of Orland updated its General Plan through a comprehensive review of all elements.

The Planning Area, which includes the City's corporate boundary and additional lands identified as being within the primary and secondary spheres of influence (see **Figure 2-2, Study Area**), as well as additional lands south and southeast of the City. Generally, the Planning Area is bounded by Road 18 on the south, Stony Creek on the north, Road N on the east, and Road H on the west. Lands affected are located within a portion of Township 22 North, Range 3 West, as shown on the USGS Kirkwood and Orland, California, 7.5' series quads.

The purpose of the City of Orland General Plan update is to review and revise the 2003 General Plan, to reflect upon changing conditions and issues, and to provide a direction for the future growth of the City in the next twenty years. The Orland General Plan is a comprehensive document that provides policies and guidelines for the future expansion and development of the community. The General Plan helps express how the citizens of Orland wish to see development in their community occur, and it serves as a planning guidebook to decision-makers, staff, and citizens. The General Plan serves as the foundation for various planning documents that help support and implement the General Plan including: the City of Orland Zoning Ordinance; the City of Orland Subdivision Ordinance; area plans; and other planning documents.

The General Plan is intended to take a long-term perspective and to establish enduring policies that help guide the day-to-day decision-making for years to come. Time frames for various topics and policies differ throughout the General Plan with the Housing Element requiring update every five years. The General Plan considers goals, objectives, and policies that will impact the City for the next twenty years.

Changes in Land Use Designation

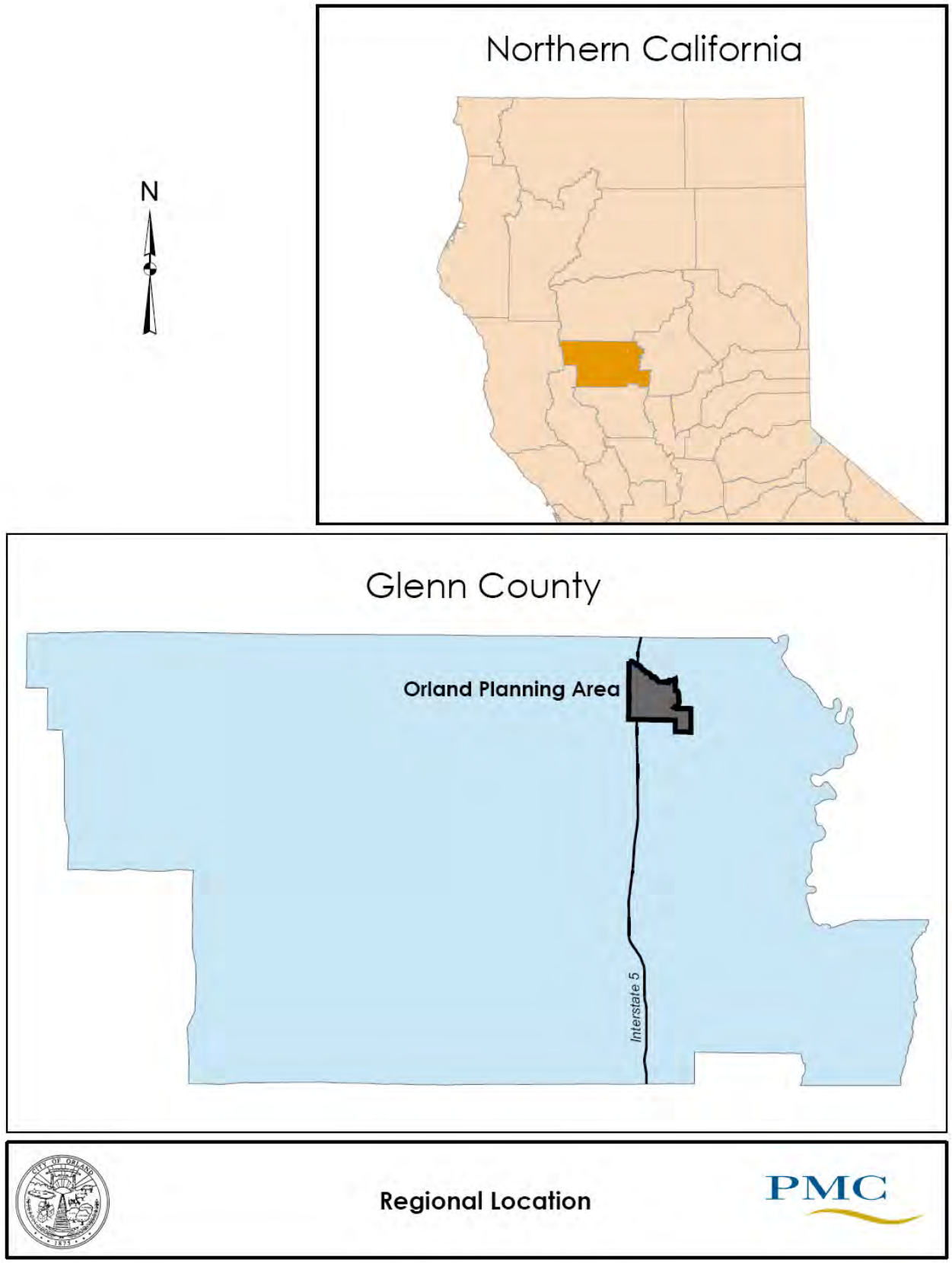
Table 2-1 identifies the acreage and land use designation changes between the existing and proposed update of the General Plan. Proposed land use changes increase the acreage available for residential, commercial, public, and open space land uses. The proposed General Plan also introduces a new land use designation of Mixed Use.

The Mixed Use district is intended to provide for a pedestrian-oriented live/work/play environment, where the business community, residents, and visitors mingle in a dynamic setting, walking from offices to restaurants to shops to home. Preservation of historic features, building design, streetscape design, signage, and the use of creative parking strategies would be integral components of development in these areas.

Table 2-1
Land Use Caparisons

Land Use Designation	Proposed (acres)	Existing (acres)	Difference (acres)
Residential			
Residential Estate (R-E)	1681.2	785.7	895.5
Low Density Residential (R-L)	1650.4	1501.3	149.1
Medium Density Residential (R-M)	49.9	54.7	-4.8
High Density Residential (R-H)	106.7	65.9	40.8
Mixed Use (MU)	22.9	-	22.9
Subtotal	**3511.1**	**2407.6**	**1103.5**
Commercial			
Commercial (C)	276.8	247.3	29.5
Subtotal	**276.8**	**247.3**	**29.5**
Industrial			
Heavy Industrial (I-H)	208.7	36.6	172.1
Light Industrial/Commercial (I-L/C)	695.4	295.7	399.7
Subtotal	**904.1**	**332.3**	**571.8**
Natural Resources/Public Facilities			
Open Space/Resource Conservation (OS/RC)	668.8	440.4	228.4
Public Facilities (P-F)	583.7	183.7	400.0
Subtotal	**1252.5**	**624.1**	**628.4**
Total Designated Lands	*5944.5*	*3611.3*	*2333.2*
Non-designated Lands (Roads, Canals)	*668.5*	*484.2*	*184.3*
Total Acreage	*6613.0*	*4095.5*	*2517.5*

Source: PMC


Northern California
N
Glenn County
Orland Planning Area
Interstate 5
Regional Location
PMC

The following summarizes Elements of the proposed General Plan update:

The **Land Use Element** of the General Plan establishes the goals, policies, and programs that will help guide the growth and development of City of Orland for the next twenty years. City of Orland has experienced a slow to moderate rate of growth during the past 20 years but has seen increased interest and proposals for new development in the past five years. This element, and the General Plan as a whole, will help the County and its elected and appointed officials determine where, how and to what degree increases in population can be accommodated.

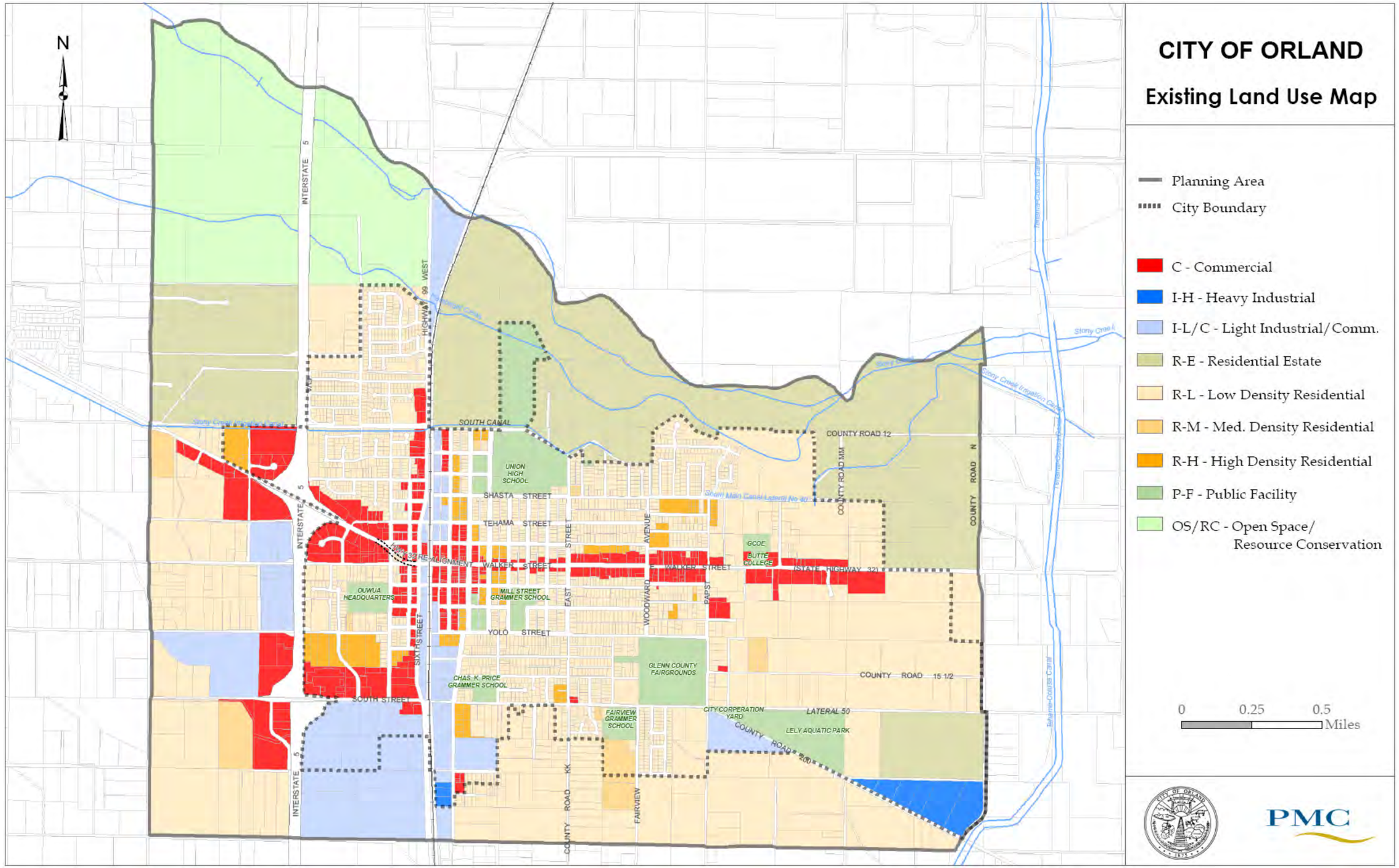
The **Circulation Element** of the General Plan addresses the movement of people and goods through and around the County. The purpose of the Circulation Element is to provide an overview of the means of transporting people and goods to, from, and within City of Orland, and how these different modes of transport can work together to complement each other to achieve a circulation system that is both effective and efficient.

The **Safety and Seismic Safety Element** provides guidance on public health issues and safety. The Element establishes goals and policies which address flood hazards, emergency preparedness, fire protection, seismic and geologic hazards, hazardous materials and waste management.

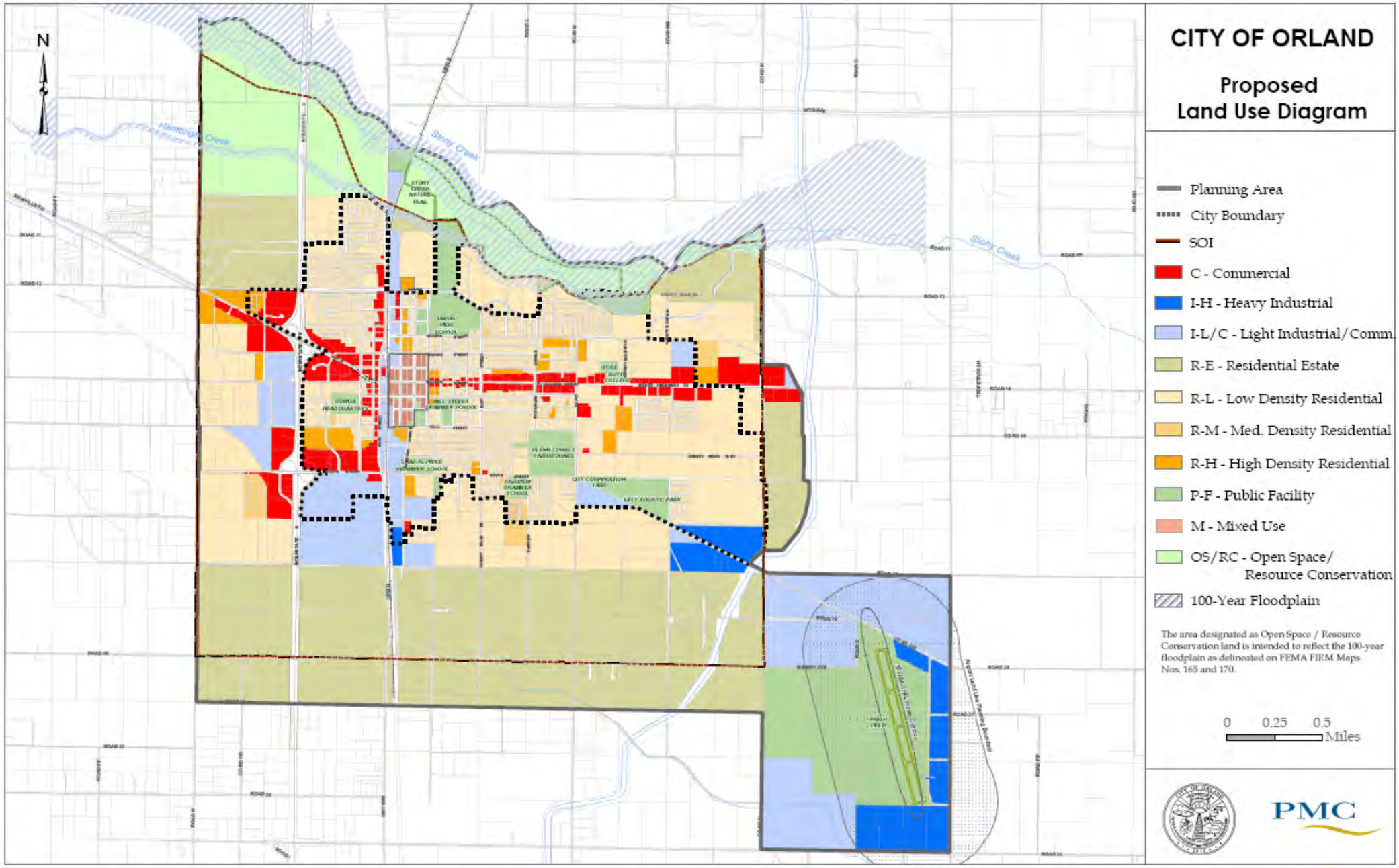
The **Open Space and Conservation Element** of the General Plan addresses a combination of issues including water quality, wildlife resources, mineral production, natural land resources, and historic and archeological resources. The General Plan is required to focus various open space and conservation issues including: the preservation of natural resources (fish and wildlife habitat); the managed production of resources (food, fiber, timber, and mineral production); outdoor recreation including areas of scenic, historic, or cultural value; and open space for health and safety. Within the City of Orland General Plan, the Open Space and Conservation Elements are combined to address the required issues as well as issues that are especially relevant to the County.

The **Noise Element** of the City of Orland General Plan provides a basis for comprehensive local policies to control and abate environmental noise and to protect the citizens of the City from excessive noise exposure.

The City does not intend to update the existing Housing Element as it was updated pursuant to state regulations. The Element was adopted by the City Council in April of 2004. The Housing Element is not required to be updated until August of 2009.


N
INTERSTATE 5
HIGHWAY 99 WEST
Stony Creek
Stony Creek Irrigation Canal
Stony Creek Irrigation Canal
Stony Creek
Stony Creek
Stony Creek Irrigation Canal
Stony Creek Irrigation Canal
Stony Creek Irrigation Canal

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N
Hamilton Creek
Stony Creek
Stony Creek
CITY OF ORLAND
Proposed
Land Use Diagram
Planning Area
City Boundary
SOI
C - Commercial
I-H - Heavy Industrial
I-L/C - Light Industrial/Comm.
R-E - Residential Estate
R-L - Low Density Residential
R-M - Med. Density Residential
R-H - High Density Residential
P-F - Public Facility
M - Mixed Use
OS/RC - Open Space/
Resource Conservation
100-Year Floodplain
The area designated as Open Space / Resource Conservation land is intended to reflect the 100-year floodplain as delineated on FEMA FIRM Maps Nos. 165 and 170.
0 0.25 0.5
Miles
PMC

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3.1 ENVIRONMENTAL IMPACTS TO BE ANALYZED IN THE EIR

The EIR for the *Proposed Project* will address the range of impacts that could result from adoption of the City of Orland General Plan 2008-2028. This section provides a short summary of the potential impacts that will be analyzed in the EIR. The proposed project is an update to a general plan and as such, mitigation measures will usually take the form of policies and discussion within the general plan and will, by their nature, be programmatic and broad in scope, rather than applying to specific parcels within the plan area.

POPULATION AND HOUSING

The EIR will identify projected future regional and City population growth as well as address local population and housing needs consistent with the adopted Housing Element. Implementation of the *Proposed Project* is not expected to result in the displacement of existing population or housing, as the majority of new development would occur on undeveloped land. The EIR will analyze the impacts of this growth on local infrastructure, services, and resources. Buildout of the proposed General Plan would result in a potential total population of 45,940. This represents an increase of approximately 6,862 residents over buildout projections for the existing General Plan.

LAND USE

The EIR will evaluate the proposed General Plan update changes to existing land use designations. Residential land use designations increase by over 1,000 acres, commercial designations increase by nearly 30 acres, industrial designations increase by over 500 acres, land designated for Open Space, Resource Conservation and Public Facilities increase by over 600 acres. This results in an increase in the potential population buildout in the Planning Area. While the Land Use Element does not modify the density range allowed for development within the residential land designations, an increase in the acreage to residential uses allows for an increase potential of 2,643 residential units over the existing General Plan. This calculates to a total potential number of housing units at buildout of 45,940. **Table 3-2** shows a total buildout potential comparison between the existing General Plan and the Proposed Project using the densities identified in the General Plan or Zoning Ordinance.

TABLE 3-1
LAND USE COMPARISON

Land Use Designation	Proposed (acres)	Existing (acres)	Difference (acres)
Commercial (C)	276.8	247.3	29.5
Heavy Industrial (I-H)	208.7	36.6	172.1
Light Industrial/Commercial (I-L/C)	**695.4**	295.7	**399.7**
Open Space/Resource Conservation (OS/RC)	668.8	440.4	228.4
Public Facilities (P-F)	583.7	183.7	400.0

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TABLE 3-2
LAND USE COMPARISON AND POTENTIAL HOUSING UNITS AND POPULATION

Land Use Designation	Proposed (acres)	Existing (acres)	Difference (acres)	Housing Unit Potential			Population Potential*		
				2008 General Plan	2002 General Plan	Difference	2008 General Plan	2002 General Plan	Difference
Residential Estate (R-E) (maximum of 2 du/ac)	1,681.2	785.7	895.5	3362	1,570	1,792	9,817	4,584	5,233
Low Density Residential (R-L) (maximum of 6 du/ac)	1,650.4	1,501.3	149.1	9,902	9,008	894	28,914	26,303	2,610
Medium Density Residential (R-M) (maximum of 10 du/ac)	49.9	54.7	-4.8	499	547	-48	1,457	1,597	-140
High Density Residential (R-H) (maximum of 15 du/ac)	106.7	65.9	40.8	1,601	989	612	4,675	2,888	1,787
Total	**3,511.1**	**2,407.6**	**11,03.5**	**15,364**	**13,014**	**2,350**	**44,863**	**38,001**	**6,862**

Note: Housing unit and population potential is only a theoretical projection and does not take into account land use constraints or acreage needed for necessary infrastructure.
* Based on 2.92 persons per housing unit as identified in the California Department of Finance Table E-5 for 2007.

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CULTURAL RESOURCES

There are no prehistoric archaeological sites, isolates or features formally documented within the planning area. The Southern Pacific Railroad, County Road 99W, and other historic and architectural resources are known to be present and have been documented within the planning area. The archaeological records of the Northeast Information Center at CSU, Chico contain no documented prehistoric or historic archaeological sites (excluding components of the built environment, addressed elsewhere in the updated General Plan). However, previous archaeological study has involved less than one percent of the study area. Although archaeological sensitivity is considered generally low throughout the majority of the land comprising the study area, it is likely that prehistoric and early historic archaeological sites exist within unsurveyed portions of the study area and would be encountered during routine pedestrian archaeological field survey of such areas. Additionally, within the City of Orland are a number of structures which may be eligible for historic preservation. Development consistent with the General Plan has the potential to impact these cultural/historic resources along with others that may not have been identified to date. The EIR will analyze the potential for impacts to historic, archaeological, and paleontological resources.

VISUAL RESOURCES AND AESTHETICS

The EIR will identify existing regional and Planning Area aesthetics and visual setting and discuss impacts concerning the conversion of undeveloped land to urban uses as well as impacts to existing visual character, scenic vistas, scenic highways, or creation of new sources of substantial light or glare. Most of the land surrounding the City is agricultural land, which imparts a rural character to the area that many find aesthetically pleasing. Future development under the proposed General Plan would encroach upon some of this agricultural land, changing the character of the developed land from rural to a more urban appearance. Stony Creek is the most significant natural scenic resource within the Planning Area. There are no State scenic highways that pass through Orland or the vicinity.

AGRICULTURAL RESOURCES

Agricultural operations within the Orland planning area are primarily hobby farms, meaning that they provide supplemental rather that primary income. Orland's agricultural picture includes orchards of almonds, walnuts, olives, peaches, and prunes. The Planning Area contains areas of prime agricultural land, farmland of statewide significance as well as unique farmland. The EIR will analyze the potential for development consistent with the General Plan to convert agricultural lands to non-agricultural purposes.

BIOLOGICAL RESOURCES

Development consistent with the proposed project has the potential to impact biological resources, such as sensitive species and other ecologically sensitive habitats (i.e., vernal pools, riparian, grassland areas, etc.) located within the Planning Area. Potential impacts to biological resources will be addressed in the EIR.

HYDROLOGY AND WATER QUALITY

Development in the City has the potential to cause changes in the amount and quality of groundwater supplies and increase the amount of impervious surfaces within the Planning Area. These changes could affect regional groundwater tables, surface water, cause erosion or result in localized flooding. The EIR will examine existing and future water supplies as well as capacities and facilities of the City. Additionally, the EIR will discuss the potential impacts to local water quality associated with buildout of the Planning Area and address the potential for flood hazards within the Planning Area.

TRANSPORTATION AND TRAFFIC

The development within the City will result in an increased number of local and regional vehicle trips and may result in changes to existing traffic patterns. The increase in traffic may lead to increased traffic congestion in some parts of the City and could result in decreased levels of services for both local and regional roadways and intersections. These impacts will be analyzed in the EIR.

AIR QUALITY

The City of Orland includes an Open Space and Conservation Element, which addresses air quality in City of Orland. The Element contains policies and implementation measures that require development projects to incorporate measures to reduce air quality impacts. The EIR will evaluate potential air quality impacts produced as a result of implementation of the *Proposed Project*.

NOISE

Development within the City will result in an increase in both local and regional vehicular traffic which is the primary source of noise within the City. The EIR will discuss the potential noise impacts associated with the creation of new noise sources and changes to existing noise conditions, including noise from both mobile and stationary sources.

PUBLIC SERVICES

Development will result in an increase in the demand for local public services such as fire and emergency services, law enforcement, schools, parks, and other public facilities. The EIR will document existing public service levels in the Planning Area and evaluate the ability of these services to meet the future demand.

RECREATION

New population associated with development within the City has the potential to increase the demand for parks and recreational facilities and could result in the need for new or expanded parks, recreational facilities, and/or other open space areas. Although the General Plan will supports the need for these additional recreational facilities within existing and new development areas within the Planning Area, the EIR will analyze the ability of the General Plan to provide adequate recreational and open space resources.

UTILITIES AND SERVICE SYSTEMS

Development within the City could result in additional demand for sewage treatment services, water services, storm drainage, power, landfill and other utilities. The EIR will describe and evaluate existing utilities and discuss the potential impacts associated adoption of the proposed General Plan.

ALTERNATIVES TO THE PROPOSED PROJECT

California Environmental Quality Act (CEQA Guidelines) requires that an EIR consider alternatives to a project (Section 15126 [a]). According to the CEQA Guidelines, the reasonable range of alternatives "shall include those that could feasibly accomplish most of the basic purposes of the project and could avoid or substantially lessen one or more of the significant impacts" (Section 15126 [d] [2]).

NO PROJECT/BUILD-OUT OF EXISTING PLANNING AREA

CEQA requires that the EIR for a project consider a "No Project" alternative. The No Project alternative assumes that the proposed General Plan will not be adopted by the City and that only those land uses designated within the current General Plan will be implemented.

SECONDARY SPHERE OF INFLUENCE ALTERNATIVE

The General Plan Planning Area would be reduced to be more consistent with the Secondary Sphere of Influence boundary. This change would move the southern Planning Area boundary to Road 20. The northern, eastern and western boundaries would remain the same as the proposed project. This Alternative would also include the area surrounding the Glenn County Airport similar to the proposed project.

COUNTY GENERAL PLAN ALTERNATIVE

Glenn County is currently in the process of updating its General Plan. This Alternative will reflect land uses identified by Glenn County for the area surrounding the City of Orland. The use of this alternative is dependent on the availability of land use information for the Glenn County General Plan update.

REDUCED DENSITY/AREA ALTERNATIVE

The City may consider changes to the density/intensity of development proposed within the plan boundaries, and may alter the plan boundaries in response to environmental impacts identified during the preparation of the EIR.

ADDITIONAL ALTERNATIVES

Additional alternatives may be considered by the City in response to public comment to this NOP. The EIR will include a description of each alternative.

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4.1 CEQA DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

☐ I find that the proposed project MAY have a significant effect(s) on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because all potentially significant effects a) have been analyzed adequately in an earlier EIR pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project. No further action is required.

Signature	Date
Nancy Sailsbery	City of Orland Director of Development Services
Printed Name	Title

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APPENDIX B URBEMIS REPORT

8/6/2009 8:48:52 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\smyers\Application Data\Urbemis\Version9a\Projects\URBEMIS1\City of Orland Existing Conditions.urb924

Project Name: 2008 Orland Existing Conditions

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (lbs/day unmitigated)	5,473.85	536.65	2,253.24	2.07	9,011.40	24.37	9,035.77	1,883.28	22.01	1,905.29	228,068.03

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	273.67	145.51	209.76	0.00	0.55	0.55	176,268.18

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1,850.91	1,869.82	21,818.69	17.29	2,760.09	533.65	1,721,889.00

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2,124.58	2,015.33	22,028.45	17.29	2,760.64	534.20	1,898,157.18

Construction Unmitigated Detail Report:

8/6/2009 8:48:52 AM

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/11/2008-8/7/2008 Active Days: 150	105.59	533.05	2,173.47	2.00	9,011.09	24.22	9,035.31	1,883.17	21.89	1,905.06	221,086.19
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
Paving Off-Gas	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	1.09	16.75	5.81	0.02	0.08	0.70	0.78	0.03	0.64	0.67	2,223.20
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36
Fine Grading 01/11/2008-08/22/2008	20.98	193.14	97.88	0.00	9,002.42	8.23	9,010.64	1,880.07	7.57	1,887.64	16,277.43
Fine Grading Dust	0.00	0.00	0.00	0.00	9,002.40	0.00	9,002.40	1,880.06	0.00	1,880.06	0.00
Fine Grading Off Road Diesel	20.85	192.94	93.43	0.00	0.00	8.22	8.22	0.00	7.56	7.56	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.13	0.20	4.46	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.21

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Time Slice 8/8/2008-8/22/2008 Active Days: 11	5,473.85	536.65	2,253.24	2.07	9,011.40	24.37	9,035.77	1,883.28	22.01	1,905.29	228,068.03
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
Paving Off-Gas	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	1.09	16.75	5.81	0.02	0.08	0.70	0.78	0.03	0.64	0.67	2,223.20
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36
Coating 08/08/2008-12/05/2008	5,368.26	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Architectural Coating	5,365.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	2.34	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Fine Grading 01/11/2008-08/22/2008	20.98	193.14	97.88	0.00	9,002.42	8.23	9,010.64	1,880.07	7.57	1,887.64	16,277.43
Fine Grading Dust	0.00	0.00	0.00	0.00	9,002.40	0.00	9,002.40	1,880.06	0.00	1,880.06	0.00
Fine Grading Off Road Diesel	20.85	192.94	93.43	0.00	0.00	8.22	8.22	0.00	7.56	7.56	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.13	0.20	4.46	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.21

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Time Slice 8/25/2008-12/5/2008 Active Days: 75	5,452.87	343.51	2,155.35	2.06	8.98	16.14	25.13	3.21	14.45	17.66	211,790.59
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
Paving Off-Gas	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	1.09	16.75	5.81	0.02	0.08	0.70	0.78	0.03	0.64	0.67	2,223.20
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36
Coating 08/08/2008-12/05/2008	5,368.26	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Architectural Coating	5,365.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	2.34	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Time Slice 12/8/2008-12/11/2008 Active Days: 4	84.61	339.91	2,075.59	2.00	8.67	15.99	24.66	3.10	14.32	17.42	204,808.75
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
Paving Off-Gas	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	1.09	16.75	5.81	0.02	0.08	0.70	0.78	0.03	0.64	0.67	2,223.20
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36

Time Slice 12/12/2008-12/22/2008 Active Days: 7	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36

Phase Assumptions

Phase: Fine Grading 1/11/2008 - 8/22/2008 - Default Fine Site Grading Description

Total Acres Disturbed: 1800.49

Maximum Daily Acreage Disturbed: 450.12

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

3 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/11/2008 - 12/11/2008 - Default Paving Description

Acres to be Paved: 450.12

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/11/2008 - 12/22/2008 - Default Building Construction Description

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Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2008 - 12/5/2008 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	10.65	144.31	105.35	0.00	0.26	0.26	176,097.91
Hearth - No Summer Emissions							
Landscape	17.62	1.20	104.41	0.00	0.29	0.29	170.27
Consumer Products	119.32						
Architectural Coatings	126.08						
TOTALS (lbs/day, unmitigated)	273.67	145.51	209.76	0.00	0.55	0.55	176,268.18

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	191.98	189.50	2,306.22	1.78	281.09	54.42	176,744.13
Apartments low rise	14.65	13.52	164.53	0.13	20.05	3.88	12,608.90
Condo/townhouse general	28.56	26.35	320.70	0.25	39.09	7.57	24,577.75
Mobile home park	4.16	3.52	42.88	0.03	5.23	1.01	3,286.40
Place of worship	36.27	35.01	406.42	0.32	51.66	9.99	32,195.95
City park	1.64	0.79	9.22	0.01	1.17	0.23	729.71
School/Daycare	112.52	117.87	1,366.99	1.09	173.87	33.61	108,346.91
Commercial	835.55	971.47	11,266.38	8.96	1,433.00	277.01	892,966.99
Industrial	625.58	511.79	5,935.35	4.72	754.93	145.93	470,432.26
TOTALS (lbs/day, unmitigated)	1,850.91	1,869.82	21,818.69	17.29	2,760.09	533.65	1,721,889.00

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 95 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,153.30	9.57	dwelling units	1,991.00	19,053.87	162,904.87
Apartments low rise	13.10	6.90	dwelling units	197.00	1,359.30	11,621.61

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	38.40	6.90	dwelling units	384.00	2,649.60	22,653.29
Mobile home park	11.83	4.99	dwelling units	71.00	354.29	3,029.07
Place of worship		9.11	1000 sq ft	444.00	4,044.84	29,952.04
City park		1.59	acres	57.10	90.79	678.65
School/Daycare		14.49	1000 sq ft	944.00	13,678.56	100,810.99
Commercial		45.04	1000 sq ft	2,503.00	112,735.12	830,857.87
Industrial		4.96	1000 sq ft	11,974.00	59,391.04	437,711.98
					213,357.41	1,600,220.37

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.7	1.3	98.3	0.4
Light Truck < 3750 lbs	10.0	3.0	90.0	7.0
Light Truck 3751-5750 lbs	22.5	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.1	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	6.2	18.8	75.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	65.7	34.3	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Place of worship				3.0	1.5	95.5
City park				5.0	2.5	92.5
School/Daycare				2.0	1.0	97.0
Commercial				2.0	1.0	97.0
Industrial				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\smyers\Application Data\Urbemis\Version9a\Projects\URBEMIS1\City of Orland Existing Conditions.urb924

Project Name: 2008 Orland Existing Conditions

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (lbs/day unmitigated)	5,473.85	536.65	2,253.24	2.07	9,011.40	24.37	9,035.77	1,883.28	22.01	1,905.29	228,068.03

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	496.40	200.11	2,286.69	7.18	356.26	342.94	253,293.25

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1,699.82	2,796.87	18,934.31	13.85	2,760.09	533.65	1,389,467.89

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2,196.22	2,996.98	21,221.00	21.03	3,116.35	876.59	1,642,761.14

Construction Unmitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/11/2008-8/7/2008 Active Days: 150	105.59	533.05	2,173.47	2.00	9,011.09	24.22	9,035.31	1,883.17	21.89	1,905.06	221,086.19
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
Paving Off-Gas	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	1.09	16.75	5.81	0.02	0.08	0.70	0.78	0.03	0.64	0.67	2,223.20
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36
Fine Grading 01/11/2008-08/22/2008	20.98	193.14	97.88	0.00	9,002.42	8.23	9,010.64	1,880.07	7.57	1,887.64	16,277.43
Fine Grading Dust	0.00	0.00	0.00	0.00	9,002.40	0.00	9,002.40	1,880.06	0.00	1,880.06	0.00
Fine Grading Off Road Diesel	20.85	192.94	93.43	0.00	0.00	8.22	8.22	0.00	7.56	7.56	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.13	0.20	4.46	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.21

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Time Slice 8/8/2008-8/22/2008 Active Days: 11	5,473.85	536.65	2,253.24	2.07	9,011.40	24.37	9,035.77	1,883.28	22.01	1,905.29	228,068.03
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
Paving Off-Gas	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	1.09	16.75	5.81	0.02	0.08	0.70	0.78	0.03	0.64	0.67	2,223.20
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36
Coating 08/08/2008-12/05/2008	5,368.26	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Architectural Coating	5,365.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	2.34	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Fine Grading 01/11/2008-08/22/2008	20.98	193.14	97.88	0.00	9,002.42	8.23	9,010.64	1,880.07	7.57	1,887.64	16,277.43
Fine Grading Dust	0.00	0.00	0.00	0.00	9,002.40	0.00	9,002.40	1,880.06	0.00	1,880.06	0.00
Fine Grading Off Road Diesel	20.85	192.94	93.43	0.00	0.00	8.22	8.22	0.00	7.56	7.56	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.13	0.20	4.46	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.21

Time Slice 8/25/2008-12/5/2008 Active Days: 75	5,452.87	343.51	2,155.35	2.06	8.98	16.14	25.13	3.21	14.45	17.66	211,790.59
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
Paving Off-Gas	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	1.09	16.75	5.81	0.02	0.08	0.70	0.78	0.03	0.64	0.67	2,223.20
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36
Coating 08/08/2008-12/05/2008	5,368.26	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Architectural Coating	5,365.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	2.34	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Time Slice 12/8/2008-12/11/2008 Active Days: 4	84.61	339.91	2,075.59	2.00	8.67	15.99	24.66	3.10	14.32	17.42	204,808.75
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
Paving Off-Gas	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	1.09	16.75	5.81	0.02	0.08	0.70	0.78	0.03	0.64	0.67	2,223.20
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36

Time Slice 12/12/2008-12/22/2008 Active Days: 7	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36

Phase Assumptions

Phase: Fine Grading 1/11/2008 - 8/22/2008 - Default Fine Site Grading Description

Total Acres Disturbed: 1800.49

Maximum Daily Acreage Disturbed: 450.12

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

3 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/11/2008 - 12/11/2008 - Default Paving Description

Acres to be Paved: 450.12

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/11/2008 - 12/22/2008 - Default Building Construction Description

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Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2008 - 12/5/2008 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	10.65	144.31	105.35	0.00	0.26	0.26	176,097.91
Hearth	240.35	55.80	2,181.34	7.18	356.00	342.68	77,195.34
Landscaping - No Winter Emissions							
Consumer Products	119.32						
Architectural Coatings	126.08						
TOTALS (lbs/day, unmitigated)	496.40	200.11	2,286.69	7.18	356.26	342.94	253,293.25

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	174.17	283.68	1,968.88	1.43	281.09	54.42	142,903.15
Apartments low rise	12.47	20.24	140.46	0.10	20.05	3.88	10,194.69
Condo/townhouse general	24.30	39.45	273.79	0.20	39.09	7.57	19,871.88
Mobile home park	3.27	5.27	36.61	0.03	5.23	1.01	2,657.16
Place of worship	31.85	52.36	353.30	0.26	51.66	9.99	25,973.87
City park	0.76	1.19	8.00	0.01	1.17	0.23	588.73
School/Daycare	106.81	176.29	1,189.17	0.87	173.87	33.61	87,404.98
Commercial	876.13	1,452.95	9,800.83	7.17	1,433.00	277.01	720,369.08
Industrial	470.06	765.44	5,163.27	3.78	754.93	145.93	379,504.35
TOTALS (lbs/day, unmitigated)	1,699.82	2,796.87	18,934.31	13.85	2,760.09	533.65	1,389,467.89

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 50 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,153.30	9.57	dwelling units	1,991.00	19,053.87	162,904.87
Apartments low rise	13.10	6.90	dwelling units	197.00	1,359.30	11,621.61

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	38.40	6.90	dwelling units	384.00	2,649.60	22,653.29
Mobile home park	11.83	4.99	dwelling units	71.00	354.29	3,029.07
Place of worship		9.11	1000 sq ft	444.00	4,044.84	29,952.04
City park		1.59	acres	57.10	90.79	678.65
School/Daycare		14.49	1000 sq ft	944.00	13,678.56	100,810.99
Commercial		45.04	1000 sq ft	2,503.00	112,735.12	830,857.87
Industrial		4.96	1000 sq ft	11,974.00	59,391.04	437,711.98
					213,357.41	1,600,220.37

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.7	1.3	98.3	0.4
Light Truck < 3750 lbs	10.0	3.0	90.0	7.0
Light Truck 3751-5750 lbs	22.5	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.1	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	6.2	18.8	75.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	65.7	34.3	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Place of worship				3.0	1.5	95.5
City park				5.0	2.5	92.5
School/Daycare				2.0	1.0	97.0
Commercial				2.0	1.0	97.0
Industrial				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\smyers\Application Data\Urbemis\Version9a\Projects\URBEMIS1\City of Orland Existing Conditions.urb924

Project Name: 2008 Orland Existing Conditions

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (lbs/day unmitigated)	5,473.85	536.65	2,253.24	2.07	9,011.40	24.37	9,035.77	1,883.28	22.01	1,905.29	228,068.03

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	496.40	200.11	2,286.69	7.18	356.26	342.94	253,293.25

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1,699.82	2,796.87	18,934.31	13.85	2,760.09	533.65	1,389,467.89

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2,196.22	2,996.98	21,221.00	21.03	3,116.35	876.59	1,642,761.14

Construction Unmitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/11/2008-8/7/2008 Active Days: 150	105.59	533.05	2,173.47	2.00	9,011.09	24.22	9,035.31	1,883.17	21.89	1,905.06	221,086.19
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
Paving Off-Gas	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	1.09	16.75	5.81	0.02	0.08	0.70	0.78	0.03	0.64	0.67	2,223.20
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36
Fine Grading 01/11/2008-08/22/2008	20.98	193.14	97.88	0.00	9,002.42	8.23	9,010.64	1,880.07	7.57	1,887.64	16,277.43
Fine Grading Dust	0.00	0.00	0.00	0.00	9,002.40	0.00	9,002.40	1,880.06	0.00	1,880.06	0.00
Fine Grading Off Road Diesel	20.85	192.94	93.43	0.00	0.00	8.22	8.22	0.00	7.56	7.56	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.13	0.20	4.46	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.21

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Time Slice 8/8/2008-8/22/2008 Active Days: 11	5,473.85	536.65	2,253.24	2.07	9,011.40	24.37	9,035.77	1,883.28	22.01	1,905.29	228,068.03
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
Paving Off-Gas	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	1.09	16.75	5.81	0.02	0.08	0.70	0.78	0.03	0.64	0.67	2,223.20
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36
Coating 08/08/2008-12/05/2008	5,368.26	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Architectural Coating	5,365.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	2.34	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Fine Grading 01/11/2008-08/22/2008	20.98	193.14	97.88	0.00	9,002.42	8.23	9,010.64	1,880.07	7.57	1,887.64	16,277.43
Fine Grading Dust	0.00	0.00	0.00	0.00	9,002.40	0.00	9,002.40	1,880.06	0.00	1,880.06	0.00
Fine Grading Off Road Diesel	20.85	192.94	93.43	0.00	0.00	8.22	8.22	0.00	7.56	7.56	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.13	0.20	4.46	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.21

Time Slice 8/25/2008-12/5/2008 Active Days: 75	5,452.87	343.51	2,155.35	2.06	8.98	16.14	25.13	3.21	14.45	17.66	211,790.59
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
Paving Off-Gas	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	1.09	16.75	5.81	0.02	0.08	0.70	0.78	0.03	0.64	0.67	2,223.20
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Building 01/11/2008-12/22/2008	74.97	301.95	2,057.45	1.97	8.59	13.46	22.05	3.07	12.00	15.07	201,027.38
Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36
Coating 08/08/2008-12/05/2008	5,368.26	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Architectural Coating	5,365.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	2.34	3.61	79.76	0.07	0.31	0.15	0.46	0.11	0.12	0.24	6,981.84
Time Slice 12/8/2008-12/11/2008 Active Days: 4	84.61	339.91	2,075.59	2.00	8.67	15.99	24.66	3.10	14.32	17.42	204,808.75
Asphalt 01/11/2008-12/11/2008	9.64	37.96	18.14	0.02	0.08	2.53	2.61	0.03	2.33	2.35	3,781.38
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Building Off Road Diesel	4.65	26.25	14.99	0.00	0.00	1.91	1.91	0.00	1.75	1.75	2,259.28
Building Vendor Trips	15.75	191.72	184.68	0.35	1.30	8.02	9.32	0.44	7.35	7.79	36,150.74
Building Worker Trips	54.57	83.98	1,857.79	1.63	7.29	3.54	10.83	2.63	2.90	5.53	162,617.36

Phase Assumptions

Phase: Fine Grading 1/11/2008 - 8/22/2008 - Default Fine Site Grading Description

Total Acres Disturbed: 1800.49

Maximum Daily Acreage Disturbed: 450.12

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

3 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/11/2008 - 12/11/2008 - Default Paving Description

Acres to be Paved: 450.12

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/11/2008 - 12/22/2008 - Default Building Construction Description

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Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2008 - 12/5/2008 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	10.65	144.31	105.35	0.00	0.26	0.26	176,097.91
Hearth	240.35	55.80	2,181.34	7.18	356.00	342.68	77,195.34
Landscaping - No Winter Emissions							
Consumer Products	119.32						
Architectural Coatings	126.08						
TOTALS (lbs/day, unmitigated)	496.40	200.11	2,286.69	7.18	356.26	342.94	253,293.25

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	174.17	283.68	1,968.88	1.43	281.09	54.42	142,903.15
Apartments low rise	12.47	20.24	140.46	0.10	20.05	3.88	10,194.69
Condo/townhouse general	24.30	39.45	273.79	0.20	39.09	7.57	19,871.88
Mobile home park	3.27	5.27	36.61	0.03	5.23	1.01	2,657.16
Place of worship	31.85	52.36	353.30	0.26	51.66	9.99	25,973.87
City park	0.76	1.19	8.00	0.01	1.17	0.23	588.73
School/Daycare	106.81	176.29	1,189.17	0.87	173.87	33.61	87,404.98
Commercial	876.13	1,452.95	9,800.83	7.17	1,433.00	277.01	720,369.08
Industrial	470.06	765.44	5,163.27	3.78	754.93	145.93	379,504.35
TOTALS (lbs/day, unmitigated)	1,699.82	2,796.87	18,934.31	13.85	2,760.09	533.65	1,389,467.89

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 50 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,153.30	9.57	dwelling units	1,991.00	19,053.87	162,904.87
Apartments low rise	13.10	6.90	dwelling units	197.00	1,359.30	11,621.61

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	38.40	6.90	dwelling units	384.00	2,649.60	22,653.29
Mobile home park	11.83	4.99	dwelling units	71.00	354.29	3,029.07
Place of worship		9.11	1000 sq ft	444.00	4,044.84	29,952.04
City park		1.59	acres	57.10	90.79	678.65
School/Daycare		14.49	1000 sq ft	944.00	13,678.56	100,810.99
Commercial		45.04	1000 sq ft	2,503.00	112,735.12	830,857.87
Industrial		4.96	1000 sq ft	11,974.00	59,391.04	437,711.98
					213,357.41	1,600,220.37

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.7	1.3	98.3	0.4
Light Truck < 3750 lbs	10.0	3.0	90.0	7.0
Light Truck 3751-5750 lbs	22.5	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.1	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	6.2	18.8	75.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	65.7	34.3	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Place of worship				3.0	1.5	95.5
City park				5.0	2.5	92.5
School/Daycare				2.0	1.0	97.0
Commercial				2.0	1.0	97.0
Industrial				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\smyers\Application Data\Urbemis\Version9a\Projects\URBEMIS1\City of Orland Existing Conditions.urb924

Project Name: 2008 Orland Existing Conditions

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (tons/year unmitigated)	242.94	57.55	267.58	0.25	725.78	2.64	728.41	151.73	2.38	154.11	26,891.20

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	58.15	28.20	117.84	0.29	14.63	14.09	34,635.48

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	328.60	397.64	3,806.43	2.95	503.70	97.37	294,022.46

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	386.75	425.84	3,924.27	3.24	518.33	111.46	328,657.94

Construction Unmitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008	242.94	57.55	267.58	0.25	725.78	2.64	728.41	151.73	2.38	154.11	26,891.20
Asphalt 01/11/2008-12/11/2008	1.16	4.56	2.18	0.00	0.01	0.30	0.31	0.00	0.28	0.28	453.77
Paving Off-Gas	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.43	2.54	1.29	0.00	0.00	0.22	0.22	0.00	0.20	0.20	170.26
Paving On Road Diesel	0.13	2.01	0.70	0.00	0.01	0.08	0.09	0.00	0.08	0.08	266.78
Paving Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.72
Building 01/11/2008-12/22/2008	9.26	37.29	254.09	0.24	1.06	1.66	2.72	0.38	1.48	1.86	24,826.88
Building Off Road Diesel	0.57	3.24	1.85	0.00	0.00	0.24	0.24	0.00	0.22	0.22	279.02
Building Vendor Trips	1.94	23.68	22.81	0.04	0.16	0.99	1.15	0.05	0.91	0.96	4,464.62
Building Worker Trips	6.74	10.37	229.44	0.20	0.90	0.44	1.34	0.32	0.36	0.68	20,083.24
Fine Grading 01/11/2008-08/22/2008	1.69	15.55	7.88	0.00	724.69	0.66	725.36	151.35	0.61	151.95	1,310.33
Fine Grading Dust	0.00	0.00	0.00	0.00	724.69	0.00	724.69	151.34	0.00	151.34	0.00
Fine Grading Off Road Diesel	1.68	15.53	7.52	0.00	0.00	0.66	0.66	0.00	0.61	0.61	1,278.92
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.41
Coating 08/08/2008-12/05/2008	230.84	0.16	3.43	0.00	0.01	0.01	0.02	0.00	0.01	0.01	300.22
Architectural Coating	230.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.10	0.16	3.43	0.00	0.01	0.01	0.02	0.00	0.01	0.01	300.22

Phase Assumptions

Phase: Fine Grading 1/11/2008 - 8/22/2008 - Default Fine Site Grading Description

Total Acres Disturbed: 1800.49

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Maximum Daily Acreage Disturbed: 450.12

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

3 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/11/2008 - 12/11/2008 - Default Paving Description

Acres to be Paved: 450.12

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/11/2008 - 12/22/2008 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 8/8/2008 - 12/5/2008 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	33.95	40.31	400.36	0.30	51.30	9.93	30,197.14
Apartments low rise	2.54	2.88	28.56	0.02	3.66	0.71	2,154.26
Condo/townhouse general	4.95	5.61	55.67	0.04	7.13	1.38	4,199.17
Mobile home park	0.70	0.75	7.44	0.01	0.95	0.18	561.49
Place of worship	6.35	7.44	70.94	0.06	9.43	1.82	5,497.25
City park	0.25	0.17	1.61	0.00	0.21	0.04	124.60
School/Daycare	20.19	25.07	238.66	0.19	31.73	6.13	18,499.34
Commercial	154.96	206.58	1,966.96	1.53	261.52	50.55	152,466.77
Industrial	104.71	108.83	1,036.23	0.80	137.77	26.63	80,322.44
TOTALS (tons/year, unmitigated)	328.60	397.64	3,806.43	2.95	503.70	97.37	294,022.46

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,153.30	9.57	dwelling units	1,991.00	19,053.87	162,904.87
Apartments low rise	13.10	6.90	dwelling units	197.00	1,359.30	11,621.61
Condo/townhouse general	38.40	6.90	dwelling units	384.00	2,649.60	22,653.29
Mobile home park	11.83	4.99	dwelling units	71.00	354.29	3,029.07
Place of worship		9.11	1000 sq ft	444.00	4,044.84	29,952.04
City park		1.59	acres	57.10	90.79	678.65
School/Daycare		14.49	1000 sq ft	944.00	13,678.56	100,810.99
Commercial		45.04	1000 sq ft	2,503.00	112,735.12	830,857.87
Industrial		4.96	1000 sq ft	11,974.00	59,391.04	437,711.98
					213,357.41	1,600,220.37

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.7	1.3	98.3	0.4
Light Truck < 3750 lbs	10.0	3.0	90.0	7.0
Light Truck 3751-5750 lbs	22.5	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.1	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	6.2	18.8	75.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	65.7	34.3	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Place of worship				3.0	1.5	95.5
City park				5.0	2.5	92.5
School/Daycare				2.0	1.0	97.0
Commercial				2.0	1.0	97.0
Industrial				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\smyers\Application Data\Urbemis\Version9a\Projects\URBEMIS1\City of Orland 2028 Conditions.urb924

Project Name: Orland 2028 Conditions

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (lbs/day unmitigated)	3.97	22.14	12.65	0.00	0.01	1.87	1.88	0.00	1.72	1.72	1,681.61
2009 TOTALS (lbs/day unmitigated)	238.17	575.87	2,631.48	2.64	11,036.68	26.11	11,062.80	2,306.61	23.50	2,330.11	285,838.32
2010 TOTALS (lbs/day unmitigated)	228.86	531.53	2,418.90	2.64	11,036.68	24.53	11,061.21	2,306.61	22.04	2,328.65	286,029.20
2011 TOTALS (lbs/day unmitigated)	219.92	486.91	2,227.78	2.64	11,036.68	22.55	11,059.24	2,306.61	20.20	2,326.81	286,178.65
2012 TOTALS (lbs/day unmitigated)	211.99	443.65	2,051.35	2.64	11,036.68	20.96	11,057.65	2,306.61	18.74	2,325.35	286,307.71
2013 TOTALS (lbs/day unmitigated)	204.83	403.72	1,889.66	2.64	11,036.68	19.48	11,056.16	2,306.61	17.35	2,323.96	286,420.18
2014 TOTALS (lbs/day unmitigated)	198.19	365.85	1,741.41	2.64	11,036.68	18.04	11,054.72	2,306.61	16.02	2,322.63	286,519.72

2015 TOTALS (lbs/day unmitigated)	191.87	331.41	1,606.51	2.64	11,036.68	16.84	11,053.53	2,306.61	14.91	2,321.51	286,585.66
2016 TOTALS (lbs/day unmitigated)	186.50	300.88	1,491.03	2.64	11,036.68	15.75	11,052.44	2,306.61	13.90	2,320.51	286,597.56
2017 TOTALS (lbs/day unmitigated)	181.77	273.45	1,383.63	2.64	11,036.68	14.72	11,051.40	2,306.61	12.95	2,319.56	286,609.53
2018 TOTALS (lbs/day unmitigated)	177.15	248.70	1,286.44	2.64	11,036.68	13.73	11,050.41	2,306.61	12.06	2,318.66	286,617.58
2019 TOTALS (lbs/day unmitigated)	173.15	226.79	1,198.49	2.64	11,036.68	12.83	11,049.52	2,306.61	11.24	2,317.85	286,620.99
2020 TOTALS (lbs/day unmitigated)	169.56	207.32	1,117.05	2.64	11,036.68	12.09	11,048.78	2,306.61	10.56	2,317.16	286,624.64
2021 TOTALS (lbs/day unmitigated)	159.49	172.68	826.59	2.64	11,036.68	11.26	11,047.94	2,306.61	9.79	2,316.40	286,690.06
2022 TOTALS (lbs/day unmitigated)	159.49	172.68	826.59	2.64	11,036.68	11.26	11,047.94	2,306.61	9.79	2,316.40	286,690.06
2023 TOTALS (lbs/day unmitigated)	159.49	172.68	826.59	2.64	11,036.68	11.26	11,047.94	2,306.61	9.79	2,316.40	286,690.06
2024 TOTALS (lbs/day unmitigated)	159.49	172.68	826.59	2.64	11,036.68	11.26	11,047.94	2,306.61	9.79	2,316.40	286,690.06
2025 TOTALS (lbs/day unmitigated)	159.49	172.68	826.59	2.64	11,036.68	11.26	11,047.94	2,306.61	9.79	2,316.40	286,690.06
2026 TOTALS (lbs/day unmitigated)	154.53	158.68	686.24	2.64	11,036.68	11.48	11,048.17	2,306.61	9.96	2,316.57	286,653.23

2027 TOTALS (lbs/day unmitigated)	154.53	158.68	686.24	2.64	11,036.68	11.48	11,048.17	2,306.61	9.96	2,316.57	286,653.23
2028 TOTALS (lbs/day unmitigated)	154.53	158.68	686.24	2.64	11,036.68	11.48	11,048.17	2,306.61	9.96	2,316.57	286,653.23

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	414.94	197.84	304.83	0.01	0.81	0.81	240,307.30

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2,687.68	2,772.01	32,372.60	25.62	4,092.17	791.23	2,553,310.85

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3,102.62	2,969.85	32,677.43	25.63	4,092.98	792.04	2,793,618.15

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 1/28/2008-12/31/2008 Active Days: 243	3.97	22.14	12.65	0.00	0.01	1.87	1.88	0.00	1.72	1.72	1,681.61
Asphalt 01/28/2008-05/11/2028	3.97	22.14	12.65	0.00	0.01	1.87	1.88	0.00	1.72	1.72	1,681.61
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	0.06	0.93	0.32	0.00	0.00	0.04	0.04	0.00	0.04	0.04	123.43
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Time Slice 1/1/2009-1/9/2009 Active Days: 7	23.99	204.58	103.59	0.01	11,025.23	9.58	11,034.81	2,302.51	8.81	2,311.33	17,959.37
Asphalt 01/28/2008-05/11/2028	3.76	21.07	12.36	0.00	0.01	1.77	1.78	0.00	1.63	1.64	1,681.70
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.39	20.13	10.59	0.00	0.00	1.74	1.74	0.00	1.60	1.60	1,418.81
Paving On Road Diesel	0.06	0.87	0.30	0.00	0.00	0.04	0.04	0.00	0.03	0.03	123.43
Paving Worker Trips	0.04	0.07	1.47	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.45
Fine Grading 01/01/2009-01/11/2028	20.23	183.52	91.23	0.00	11,025.22	7.81	11,033.02	2,302.51	7.18	2,309.69	16,277.67
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	20.11	183.33	87.12	0.00	0.00	7.80	7.80	0.00	7.17	7.17	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.12	0.18	4.11	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.45

Time Slice 1/12/2009-4/7/2009 Active Days: 62	114.28	575.79	2,629.78	2.64	11,036.68	26.11	11,062.79	2,306.61	23.50	2,330.10	285,677.08
Asphalt 01/28/2008-05/11/2028	3.76	21.07	12.36	0.00	0.01	1.77	1.78	0.00	1.63	1.64	1,681.70
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.39	20.13	10.59	0.00	0.00	1.74	1.74	0.00	1.60	1.60	1,418.81
Paving On Road Diesel	0.06	0.87	0.30	0.00	0.00	0.04	0.04	0.00	0.03	0.03	123.43
Paving Worker Trips	0.04	0.07	1.47	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.45
Building 01/11/2009-08/22/2028	90.28	371.21	2,526.19	2.63	11.45	16.53	27.98	4.09	14.68	18.78	267,717.72
Building Off Road Diesel	4.37	24.71	14.63	0.00	0.00	1.81	1.81	0.00	1.67	1.67	2,259.28
Building Vendor Trips	20.19	245.29	235.99	0.47	1.77	10.02	11.79	0.60	9.17	9.77	49,338.28
Building Worker Trips	65.73	101.20	2,275.57	2.16	9.68	4.70	14.38	3.49	3.85	7.34	216,120.16
Fine Grading 01/01/2009-01/11/2028	20.23	183.52	91.23	0.00	11,025.22	7.81	11,033.02	2,302.51	7.18	2,309.69	16,277.67
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	20.11	183.33	87.12	0.00	0.00	7.80	7.80	0.00	7.17	7.17	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.12	0.18	4.11	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.45

Time Slice 4/8/2009-12/31/2009 Active Days: 192	238.17	575.87	2,631.48	2.64	11,036.68	26.11	11,062.80	2,306.61	23.50	2,330.11	285,838.32
Asphalt 01/28/2008-05/11/2028	3.76	21.07	12.36	0.00	0.01	1.77	1.78	0.00	1.63	1.64	1,681.70
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.39	20.13	10.59	0.00	0.00	1.74	1.74	0.00	1.60	1.60	1,418.81
Paving On Road Diesel	0.06	0.87	0.30	0.00	0.00	0.04	0.04	0.00	0.03	0.03	123.43
Paving Worker Trips	0.04	0.07	1.47	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.45
Building 01/11/2009-08/22/2028	90.28	371.21	2,526.19	2.63	11.45	16.53	27.98	4.09	14.68	18.78	267,717.72
Building Off Road Diesel	4.37	24.71	14.63	0.00	0.00	1.81	1.81	0.00	1.67	1.67	2,259.28
Building Vendor Trips	20.19	245.29	235.99	0.47	1.77	10.02	11.79	0.60	9.17	9.77	49,338.28
Building Worker Trips	65.73	101.20	2,275.57	2.16	9.68	4.70	14.38	3.49	3.85	7.34	216,120.16
Coating 04/08/2009-09/05/2028	123.89	0.08	1.70	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.24
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.08	1.70	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.24
Fine Grading 01/01/2009-01/11/2028	20.23	183.52	91.23	0.00	11,025.22	7.81	11,033.02	2,302.51	7.18	2,309.69	16,277.67
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	20.11	183.33	87.12	0.00	0.00	7.80	7.80	0.00	7.17	7.17	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.12	0.18	4.11	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.45

Time Slice 1/1/2010-12/31/2010 Active Days: 261	228.86	531.53	2,418.90	**2.64**	**11,036.68**	24.53	11,061.21	**2,306.61**	22.04	2,328.65	286,029.20
Asphalt 01/28/2008-05/11/2028	3.56	20.02	12.09	0.00	0.01	1.72	1.73	0.00	1.58	1.58	1,681.81
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.20	19.17	10.47	0.00	0.00	1.68	1.68	0.00	1.55	1.55	1,418.81
Paving On Road Diesel	0.05	0.79	0.27	0.00	0.00	0.03	0.04	0.00	0.03	0.03	123.43
Paving Worker Trips	0.04	0.06	1.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.56
Building 01/11/2009-08/22/2028	82.07	337.44	2,320.26	2.63	11.45	15.42	26.87	4.09	13.66	17.76	267,908.01
Building Off Road Diesel	4.08	23.31	14.31	0.00	0.00	1.67	1.67	0.00	1.54	1.54	2,259.28
Building Vendor Trips	18.79	222.91	220.24	0.47	1.77	9.05	10.82	0.60	8.28	8.88	49,348.13
Building Worker Trips	59.20	91.22	2,085.71	2.16	9.68	4.70	14.38	3.49	3.85	7.34	216,300.60
Coating 04/08/2009-09/05/2028	123.89	0.07	1.56	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.37
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.07	1.56	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.37
Fine Grading 01/01/2009-01/11/2028	19.34	174.00	84.99	0.00	11,025.22	7.38	11,032.60	2,302.51	6.79	2,309.30	16,278.00
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	19.24	173.83	81.22	0.00	0.00	7.38	7.38	0.00	6.79	6.79	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.11	0.16	3.77	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.78

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Time Slice 1/3/2011-12/30/2011 Active Days: 260	219.92	486.91	2,227.78	**2.64**	**11,036.68**	22.55	11,059.24	**2,306.61**	20.20	2,326.81	286,178.65
Asphalt 01/28/2008-05/11/2028	3.38	19.01	11.83	0.00	0.01	1.65	1.66	0.00	1.52	1.52	1,681.90
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.02	18.25	10.34	0.00	0.00	1.62	1.62	0.00	1.49	1.49	1,418.81
Paving On Road Diesel	0.05	0.71	0.25	0.00	0.00	0.03	0.03	0.00	0.03	0.03	123.43
Paving Worker Trips	0.03	0.05	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.66
Building 01/11/2009-08/22/2028	74.44	304.12	2,134.98	2.63	11.45	14.17	25.62	4.09	12.49	16.59	268,057.01
Building Off Road Diesel	3.77	21.85	13.95	0.00	0.00	1.57	1.57	0.00	1.45	1.45	2,259.28
Building Vendor Trips	17.36	199.81	205.80	0.47	1.77	8.10	9.88	0.60	7.41	8.01	49,354.05
Building Worker Trips	53.32	82.46	1,915.24	2.16	9.68	4.49	14.17	3.49	3.64	7.13	216,443.68
Coating 04/08/2009-09/05/2028	123.89	0.06	1.43	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.48
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.43	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.48
Fine Grading 01/01/2009-01/11/2028	18.22	163.72	79.54	0.00	11,025.22	6.72	11,031.94	2,302.51	6.19	2,308.69	16,278.26
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	18.12	163.57	76.08	0.00	0.00	6.72	6.72	0.00	6.18	6.18	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.10	0.15	3.46	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.04

Time Slice 1/2/2012-12/31/2012 Active Days: 261	211.99	443.65	2,051.35	**2.64**	**11,036.68**	20.96	11,057.65	**2,306.61**	18.74	2,325.35	286,307.71
Asphalt 01/28/2008-05/11/2028	3.21	18.01	11.60	0.00	0.01	1.56	1.57	0.00	1.44	1.44	1,681.98
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.86	17.34	10.24	0.00	0.00	1.53	1.53	0.00	1.41	1.41	1,418.81
Paving On Road Diesel	0.04	0.62	0.22	0.00	0.00	0.02	0.03	0.00	0.02	0.02	123.43
Paving Worker Trips	0.03	0.05	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.73
Building 01/11/2009-08/22/2028	67.49	271.96	1,963.86	2.63	11.45	13.13	24.58	4.09	11.53	15.63	268,185.68
Building Off Road Diesel	3.48	20.42	13.62	0.00	0.00	1.42	1.42	0.00	1.31	1.31	2,259.28
Building Vendor Trips	15.92	176.86	191.43	0.47	1.77	7.21	8.99	0.60	6.59	7.19	49,362.14
Building Worker Trips	48.10	74.68	1,758.81	2.16	9.68	4.49	14.17	3.49	3.64	7.13	216,564.25
Coating 04/08/2009-09/05/2028	123.88	0.06	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.57
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.57
Fine Grading 01/01/2009-01/11/2028	17.40	153.63	74.58	0.00	11,025.22	6.27	11,031.48	2,302.51	5.76	2,308.27	16,278.48
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	17.31	153.50	71.40	0.00	0.00	6.26	6.26	0.00	5.76	5.76	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.09	0.13	3.18	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.26

Time Slice 1/1/2013-12/31/2013 Active Days: 261	204.83	403.72	1,889.66	**2.64**	**11,036.68**	19.48	11,056.16	**2,306.61**	17.35	2,323.96	286,420.18
Asphalt 01/28/2008-05/11/2028	3.03	17.05	11.40	0.00	0.01	1.46	1.47	0.00	1.34	1.34	1,682.05
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.69	16.46	10.15	0.00	0.00	1.43	1.43	0.00	1.32	1.32	1,418.81
Paving On Road Diesel	0.04	0.55	0.20	0.00	0.00	0.02	0.03	0.00	0.02	0.02	123.43
Paving Worker Trips	0.03	0.04	1.04	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.80
Building 01/11/2009-08/22/2028	61.06	242.35	1,807.11	2.63	11.45	12.17	23.62	4.09	10.63	14.72	268,297.82
Building Off Road Diesel	3.19	19.04	13.34	0.00	0.00	1.26	1.26	0.00	1.16	1.16	2,259.28
Building Vendor Trips	14.58	155.87	177.72	0.47	1.77	6.39	8.16	0.60	5.83	6.43	49,371.56
Building Worker Trips	43.30	67.45	1,616.05	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,666.98
Coating 04/08/2009-09/05/2028	123.88	0.05	1.21	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.65
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	1.21	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.65
Fine Grading 01/01/2009-01/11/2028	16.86	144.27	69.95	0.00	11,025.22	5.85	11,031.06	2,302.51	5.38	2,307.89	16,278.66
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	16.78	144.14	67.03	0.00	0.00	5.84	5.84	0.00	5.37	5.37	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.08	0.12	2.92	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.44

Time Slice 1/1/2014-12/31/2014 Active Days: 261	198.19	365.85	1,741.41	**2.64**	**11,036.68**	18.04	11,054.72	**2,306.61**	16.02	2,322.63	286,519.72
Asphalt 01/28/2008-05/11/2028	2.88	16.13	11.21	0.00	0.01	1.37	1.38	0.00	1.26	1.26	1,682.11
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.54	15.61	10.07	0.00	0.00	1.34	1.34	0.00	1.24	1.24	1,418.81
Paving On Road Diesel	0.04	0.48	0.18	0.00	0.00	0.02	0.02	0.00	0.02	0.02	123.43
Paving Worker Trips	0.03	0.04	0.96	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.86
Building 01/11/2009-08/22/2028	55.39	215.88	1,662.85	2.63	11.45	11.28	22.73	4.09	9.81	13.90	268,397.08
Building Off Road Diesel	2.93	17.65	13.06	0.00	0.00	1.11	1.11	0.00	1.02	1.02	2,259.28
Building Vendor Trips	13.34	137.01	164.93	0.47	1.77	5.66	7.43	0.60	5.16	5.76	49,381.23
Building Worker Trips	39.13	61.22	1,484.86	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,756.57
Coating 04/08/2009-09/05/2028	123.87	0.05	1.11	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.71
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	1.11	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.71
Fine Grading 01/01/2009-01/11/2028	16.05	133.80	66.24	0.00	11,025.22	5.39	11,030.61	2,302.51	4.96	2,307.47	16,278.82
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	15.98	133.68	63.56	0.00	0.00	5.38	5.38	0.00	4.95	4.95	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.11	2.68	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.60

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Time Slice 1/1/2015-12/31/2015 Active Days: 261	191.87	331.41	1,606.51	**2.64**	**11,036.68**	16.84	11,053.53	**2,306.61**	14.91	2,321.51	286,585.66
Asphalt 01/28/2008-05/11/2028	2.71	15.11	11.02	0.00	0.01	1.26	1.27	0.00	1.16	1.17	1,682.14
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.38	14.65	9.98	0.00	0.00	1.25	1.25	0.00	1.15	1.15	1,418.81
Paving On Road Diesel	0.03	0.42	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	123.43
Paving Worker Trips	0.02	0.04	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	50.12	192.81	1,531.85	2.63	11.45	10.61	22.06	4.09	9.17	13.26	268,462.84
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	12.25	121.10	153.36	0.47	1.77	5.05	6.82	0.60	4.59	5.19	49,390.69
Building Worker Trips	35.17	55.54	1,365.69	2.16	9.68	4.54	14.21	3.49	3.64	7.13	216,812.86
Coating 04/08/2009-09/05/2028	123.87	0.04	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.76
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.04	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.76
Fine Grading 01/01/2009-01/11/2028	15.16	123.44	62.62	0.00	11,025.22	4.97	11,030.19	2,302.51	4.57	2,307.08	16,278.92
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	15.10	123.34	60.15	0.00	0.00	4.96	4.96	0.00	4.56	4.56	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.10	2.47	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.71

Time Slice 1/1/2016-12/30/2016 Active Days: 261	186.50	300.88	1,491.03	**2.64**	**11,036.68**	15.75	11,052.44	**2,306.61**	13.90	2,320.51	286,597.56
Asphalt 01/28/2008-05/11/2028	2.55	14.12	10.87	0.00	0.01	1.16	1.17	0.00	1.07	1.07	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.22	13.72	9.91	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,418.81
Paving On Road Diesel	0.03	0.37	0.15	0.00	0.00	0.01	0.02	0.00	0.01	0.01	123.43
Paving Worker Trips	0.02	0.03	0.82	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	45.74	172.79	1,419.59	2.63	11.45	9.94	21.39	4.09	8.55	12.65	268,474.71
Building Off Road Diesel	2.47	14.84	12.61	0.00	0.00	0.88	0.88	0.00	0.81	0.81	2,259.28
Building Vendor Trips	11.32	107.23	143.39	0.47	1.77	4.52	6.29	0.60	4.11	4.71	49,396.47
Building Worker Trips	31.96	50.72	1,263.60	2.16	9.68	4.54	14.21	3.49	3.64	7.13	216,818.97
Coating 04/08/2009-09/05/2028	123.87	0.04	0.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.76
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.76
Fine Grading 01/01/2009-01/11/2028	14.35	113.93	59.62	0.00	11,025.22	4.66	11,029.87	2,302.51	4.28	2,306.79	16,278.94
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	14.29	113.84	57.34	0.00	0.00	4.65	4.65	0.00	4.28	4.28	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.09	2.28	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.72

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Time Slice 1/2/2017-12/29/2017 Active Days: 260	181.77	273.45	1,383.63	**2.64**	**11,036.68**	14.72	11,051.40	**2,306.61**	12.95	2,319.56	286,609.53
Asphalt 01/28/2008-05/11/2028	2.41	13.22	10.72	0.00	0.01	1.07	1.08	0.00	0.98	0.99	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.09	12.86	9.83	0.00	0.00	1.05	1.05	0.00	0.97	0.97	1,418.81
Paving On Road Diesel	0.03	0.33	0.14	0.00	0.00	0.01	0.02	0.00	0.01	0.01	123.43
Paving Worker Trips	0.02	0.03	0.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	41.84	155.46	1,315.32	2.63	11.45	9.41	20.86	4.09	8.07	12.16	268,486.67
Building Off Road Diesel	2.25	13.62	12.45	0.00	0.00	0.77	0.77	0.00	0.71	0.71	2,259.28
Building Vendor Trips	10.46	95.64	134.36	0.47	1.77	4.10	5.87	0.60	3.72	4.32	49,402.36
Building Worker Trips	29.14	46.20	1,168.51	2.16	9.68	4.54	14.21	3.49	3.64	7.13	216,825.03
Coating 04/08/2009-09/05/2028	123.87	0.03	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	13.65	104.73	56.71	0.00	11,025.22	4.24	11,029.45	2,302.51	3.90	2,306.40	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	13.60	104.65	54.60	0.00	0.00	4.23	4.23	0.00	3.89	3.89	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.08	2.11	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.73

Time Slice 1/1/2018-12/31/2018 Active Days: 261	177.15	248.70	1,286.44	2.64	11,036.68	13.73	11,050.41	2,306.61	12.06	2,318.66	286,617.58
Asphalt 01/28/2008-05/11/2028	2.29	12.35	10.61	0.00	0.01	0.98	0.99	0.00	0.90	0.90	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.97	12.02	9.79	0.00	0.00	0.96	0.96	0.00	0.89	0.89	1,418.81
Paving On Road Diesel	0.03	0.30	0.12	0.00	0.00	0.01	0.02	0.00	0.01	0.01	123.43
Paving Worker Trips	0.02	0.03	0.70	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	38.20	140.27	1,220.55	2.63	11.45	8.93	20.38	4.09	7.64	11.74	268,494.71
Building Off Road Diesel	2.03	12.45	12.26	0.00	0.00	0.67	0.67	0.00	0.62	0.62	2,259.28
Building Vendor Trips	9.71	85.57	126.13	0.47	1.77	3.74	5.51	0.60	3.39	3.99	49,408.04
Building Worker Trips	26.45	42.24	1,082.16	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,827.39
Coating 04/08/2009-09/05/2028	123.87	0.03	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	12.80	96.06	54.47	0.00	11,025.22	3.81	11,029.03	2,302.51	3.51	2,306.02	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	12.75	95.98	52.52	0.00	0.00	3.81	3.81	0.00	3.50	3.50	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.08	1.96	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.73

Time Slice 1/1/2019-12/31/2019 Active Days: 261	173.15	226.79	1,198.49	**2.64**	**11,036.68**	12.83	11,049.52	**2,306.61**	11.24	2,317.85	286,620.99
Asphalt 01/28/2008-05/11/2028	2.14	11.56	10.46	0.00	0.01	0.89	0.90	0.00	0.82	0.82	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.27	9.70	0.00	0.00	0.88	0.88	0.00	0.81	0.81	1,418.81
Paving On Road Diesel	0.03	0.27	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.02	0.02	0.65	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	34.91	127.13	1,134.96	2.63	11.45	8.51	19.96	4.09	7.27	11.36	268,498.13
Building Off Road Diesel	1.88	11.39	12.14	0.00	0.00	0.57	0.57	0.00	0.52	0.52	2,259.28
Building Vendor Trips	9.08	77.13	118.74	0.47	1.77	3.43	5.20	0.60	3.11	3.71	49,413.35
Building Worker Trips	23.96	38.60	1,004.08	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,825.50
Coating 04/08/2009-09/05/2028	123.86	0.03	0.75	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.75	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	12.23	88.08	52.33	0.00	11,025.22	3.43	11,028.65	2,302.51	3.15	2,305.66	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	12.19	88.01	50.51	0.00	0.00	3.42	3.42	0.00	3.15	3.15	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.81	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.73

Time Slice 1/1/2020-12/31/2020 Active Days: 262	169.56	207.32	1,117.05	**2.64**	**11,036.68**	12.09	11,048.78	**2,306.61**	10.56	2,317.16	286,624.64
Asphalt 01/28/2008-05/11/2028	2.01	10.80	10.36	0.00	0.01	0.83	0.84	0.00	0.77	0.77	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.24	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.60	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	32.16	115.94	1,055.45	2.63	11.45	8.17	19.62	4.09	6.95	11.05	268,501.78
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	8.47	69.70	111.88	0.47	1.77	3.16	4.93	0.60	2.86	3.46	49,418.20
Building Worker Trips	21.98	35.74	931.54	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,824.30
Coating 04/08/2009-09/05/2028	123.86	0.03	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	11.53	80.55	50.54	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.68	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.73

Time Slice 1/1/2021-12/31/2021 Active Days: 261	159.49	172.68	826.59	2.64	**11,036.68**	11.26	11,047.94	**2,306.61**	9.79	2,316.40	**286,690.06**
Asphalt 01/28/2008-05/11/2028	2.00	10.71	10.17	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.18
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.16	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 01/11/2009-08/22/2028	22.12	81.42	765.87	2.63	11.45	7.34	18.79	4.09	6.19	10.28	268,567.05
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	6.45	46.71	87.04	0.47	1.77	2.33	4.10	0.60	2.10	2.70	49,438.35
Building Worker Trips	13.96	24.21	666.80	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,869.43
Coating 04/08/2009-09/05/2028	123.86	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Fine Grading 01/01/2009-01/11/2028	11.51	80.53	50.06	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,279.03
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	1.20	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.81

Time Slice 1/3/2022-12/30/2022 Active Days: 260	159.49	172.68	826.59	2.64	**11,036.68**	11.26	11,047.94	**2,306.61**	9.79	2,316.40	**286,690.06**
Asphalt 01/28/2008-05/11/2028	2.00	10.71	10.17	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.18
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.16	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 01/11/2009-08/22/2028	22.12	81.42	765.87	2.63	11.45	7.34	18.79	4.09	6.19	10.28	268,567.05
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	6.45	46.71	87.04	0.47	1.77	2.33	4.10	0.60	2.10	2.70	49,438.35
Building Worker Trips	13.96	24.21	666.80	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,869.43
Coating 04/08/2009-09/05/2028	123.86	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Fine Grading 01/01/2009-01/11/2028	11.51	80.53	50.06	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,279.03
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	1.20	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.81

Time Slice 1/2/2023-12/29/2023 Active Days: 260	159.49	172.68	826.59	2.64	**11,036.68**	11.26	11,047.94	**2,306.61**	9.79	2,316.40	**286,690.06**
Asphalt 01/28/2008-05/11/2028	2.00	10.71	10.17	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.18
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.16	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 01/11/2009-08/22/2028	22.12	81.42	765.87	2.63	11.45	7.34	18.79	4.09	6.19	10.28	268,567.05
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	6.45	46.71	87.04	0.47	1.77	2.33	4.10	0.60	2.10	2.70	49,438.35
Building Worker Trips	13.96	24.21	666.80	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,869.43
Coating 04/08/2009-09/05/2028	123.86	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Fine Grading 01/01/2009-01/11/2028	11.51	80.53	50.06	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,279.03
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	1.20	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.81

Time Slice 1/1/2024-12/31/2024 Active Days: 262	159.49	172.68	826.59	2.64	**11,036.68**	11.26	11,047.94	**2,306.61**	9.79	2,316.40	**286,690.06**
Asphalt 01/28/2008-05/11/2028	2.00	10.71	10.17	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.18
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.16	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 01/11/2009-08/22/2028	22.12	81.42	765.87	2.63	11.45	7.34	18.79	4.09	6.19	10.28	268,567.05
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	6.45	46.71	87.04	0.47	1.77	2.33	4.10	0.60	2.10	2.70	49,438.35
Building Worker Trips	13.96	24.21	666.80	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,869.43
Coating 04/08/2009-09/05/2028	123.86	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Fine Grading 01/01/2009-01/11/2028	11.51	80.53	50.06	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,279.03
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	1.20	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.81

Time Slice 1/1/2025-12/31/2025 Active Days: 261	159.49	172.68	826.59	2.64	**11,036.68**	11.26	11,047.94	**2,306.61**	9.79	2,316.40	**286,690.06**
Asphalt 01/28/2008-05/11/2028	2.00	10.71	10.17	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.18
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.16	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 01/11/2009-08/22/2028	22.12	81.42	765.87	2.63	11.45	7.34	18.79	4.09	6.19	10.28	268,567.05
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	6.45	46.71	87.04	0.47	1.77	2.33	4.10	0.60	2.10	2.70	49,438.35
Building Worker Trips	13.96	24.21	666.80	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,869.43
Coating 04/08/2009-09/05/2028	123.86	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Fine Grading 01/01/2009-01/11/2028	11.51	80.53	50.06	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,279.03
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	1.20	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.81

Time Slice 1/1/2026-12/31/2026 Active Days: 261	154.53	158.68	686.24	2.64	**11,036.68**	11.48	11,048.17	**2,306.61**	9.96	2,316.57	286,653.23
Asphalt 01/28/2008-05/11/2028	1.99	10.68	10.07	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	123.43
Paving Worker Trips	0.01	0.01	0.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.91
Building 01/11/2009-08/22/2028	17.18	67.46	625.94	2.63	11.45	7.57	19.02	4.09	6.36	10.45	268,530.35
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	5.56	38.58	75.23	0.47	1.77	2.05	3.82	0.60	1.84	2.44	49,441.95
Building Worker Trips	9.92	18.38	538.68	2.16	9.68	5.02	14.70	3.49	4.06	7.55	216,829.12
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	11.51	80.52	49.83	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.97	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.74

Time Slice 1/1/2027-12/31/2027 Active Days: 261	154.53	158.68	686.24	2.64	**11,036.68**	11.48	11,048.17	**2,306.61**	9.96	2,316.57	286,653.23
Asphalt 01/28/2008-05/11/2028	1.99	10.68	10.07	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	123.43
Paving Worker Trips	0.01	0.01	0.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.91
Building 01/11/2009-08/22/2028	17.18	67.46	625.94	2.63	11.45	7.57	19.02	4.09	6.36	10.45	268,530.35
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	5.56	38.58	75.23	0.47	1.77	2.05	3.82	0.60	1.84	2.44	49,441.95
Building Worker Trips	9.92	18.38	538.68	2.16	9.68	5.02	14.70	3.49	4.06	7.55	216,829.12
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	11.51	80.52	49.83	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.97	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.74

Time Slice 1/3/2028-1/11/2028 Active Days: 7	154.53	158.68	686.24	2.64	**11,036.68**	11.48	11,048.17	**2,306.61**	9.96	2,316.57	286,653.23
Asphalt 01/28/2008-05/11/2028	1.99	10.68	10.07	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	123.43
Paving Worker Trips	0.01	0.01	0.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.91
Building 01/11/2009-08/22/2028	17.18	67.46	625.94	2.63	11.45	7.57	19.02	4.09	6.36	10.45	268,530.35
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	5.56	38.58	75.23	0.47	1.77	2.05	3.82	0.60	1.84	2.44	49,441.95
Building Worker Trips	9.92	18.38	538.68	2.16	9.68	5.02	14.70	3.49	4.06	7.55	216,829.12
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	11.51	80.52	49.83	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.97	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.74

Time Slice 1/12/2028-5/11/2028 Active Days: 87	143.02	78.16	636.41	2.63	11.47	8.40	19.87	4.10	7.13	11.23	270,374.28
Asphalt 01/28/2008-05/11/2028	1.99	10.68	10.07	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	123.43
Paving Worker Trips	0.01	0.01	0.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.91
Building 01/11/2009-08/22/2028	17.18	67.46	625.94	2.63	11.45	7.57	19.02	4.09	6.36	10.45	268,530.35
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	5.56	38.58	75.23	0.47	1.77	2.05	3.82	0.60	1.84	2.44	49,441.95
Building Worker Trips	9.92	18.38	538.68	2.16	9.68	5.02	14.70	3.49	4.06	7.55	216,829.12
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Time Slice 5/12/2028-8/22/2028 Active Days: 73	141.03	67.48	626.34	2.63	11.46	7.57	19.03	4.10	6.36	10.46	268,692.12
Building 01/11/2009-08/22/2028	17.18	67.46	625.94	2.63	11.45	7.57	19.02	4.09	6.36	10.45	268,530.35
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	5.56	38.58	75.23	0.47	1.77	2.05	3.82	0.60	1.84	2.44	49,441.95
Building Worker Trips	9.92	18.38	538.68	2.16	9.68	5.02	14.70	3.49	4.06	7.55	216,829.12
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77

Time Slice 8/23/2028-9/5/2028 Active Days: 10	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77

Phase Assumptions

Phase: Fine Grading 1/1/2009 - 1/11/2028 - Default Fine Site Grading Description

Total Acres Disturbed: 2205.06

Maximum Daily Acreage Disturbed: 551.26

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

3 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/28/2008 - 5/11/2028 - Default Paving Description

Acres to be Paved: 551.26

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/11/2009 - 8/22/2028 - Default Building Construction Description

Off-Road Equipment:

8/6/2009 8:43:05 AM

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 4/8/2009 - 9/5/2028 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	14.52	195.93	137.97	0.00	0.36	0.36	240,036.76
Hearth - No Summer Emissions							
Landscape	28.91	1.91	166.86	0.01	0.45	0.45	270.54
Consumer Products	200.12						
Architectural Coatings	171.39						
TOTALS (lbs/day, unmitigated)	414.94	197.84	304.83	0.01	0.81	0.81	240,307.30

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	322.45	318.28	3,873.44	2.99	472.10	91.41	296,852.02
Apartments low rise	24.47	22.58	274.77	0.21	33.49	6.48	21,057.50
Condo/townhouse general	47.82	44.13	537.01	0.41	65.45	12.67	41,154.93
Mobile home park	7.81	6.96	84.68	0.07	10.32	2.00	6,490.06
Place of worship	36.27	35.01	406.42	0.32	51.66	9.99	32,195.95
City park	1.64	0.79	9.22	0.01	1.17	0.23	729.71
School/Daycare	112.52	117.87	1,366.99	1.09	173.87	33.61	108,346.91
Commercial	1,393.03	1,619.63	18,783.31	14.93	2,389.09	461.83	1,488,753.99
Industrial	741.67	606.76	7,036.76	5.59	895.02	173.01	557,729.78
TOTALS (lbs/day, unmitigated)	2,687.68	2,772.01	32,372.60	25.62	4,092.17	791.23	2,553,310.85

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 95 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,429.00	9.57	dwelling units	3,344.00	32,002.08	273,608.18
Apartments low rise	40.40	6.90	dwelling units	329.00	2,270.10	19,408.67

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	91.90	6.90	dwelling units	643.00	4,436.70	37,932.46
Mobile home park	62.70	5.98	dwelling units	117.00	699.66	5,981.88
Place of worship		9.11	1000 sq ft	444.00	4,044.84	29,952.04
City park		1.59	acres	57.10	90.79	678.65
School/Daycare		14.49	1000 sq ft	944.00	13,678.56	100,810.99
Commercial		45.04	1000 sq ft	4,173.00	187,951.92	1,385,205.71
Industrial		4.96	1000 sq ft	14,196.00	70,412.16	518,937.64
					315,586.81	2,372,516.22

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.7	1.3	98.3	0.4
Light Truck < 3750 lbs	10.0	3.0	90.0	7.0
Light Truck 3751-5750 lbs	22.5	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.1	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	6.2	18.8	75.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	65.7	34.3	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Place of worship				3.0	1.5	95.5
City park				5.0	2.5	92.5
School/Daycare				2.0	1.0	97.0
Commercial				2.0	1.0	97.0
Industrial				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\smyers\Application Data\Urbemis\Version9a\Projects\URBEMIS1\City of Orland 2028 Conditions.urb924

Project Name: Orland 2028 Conditions

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (lbs/day unmitigated)	3.97	22.14	12.65	0.00	0.01	1.87	1.88	0.00	1.72	1.72	1,681.61
2009 TOTALS (lbs/day unmitigated)	238.17	575.87	2,631.48	2.64	11,036.68	26.11	11,062.80	2,306.61	23.50	2,330.11	285,838.32
2010 TOTALS (lbs/day unmitigated)	228.86	531.53	2,418.90	2.64	11,036.68	24.53	11,061.21	2,306.61	22.04	2,328.65	286,029.20
2011 TOTALS (lbs/day unmitigated)	219.92	486.91	2,227.78	2.64	11,036.68	22.55	11,059.24	2,306.61	20.20	2,326.81	286,178.65
2012 TOTALS (lbs/day unmitigated)	211.99	443.65	2,051.35	2.64	11,036.68	20.96	11,057.65	2,306.61	18.74	2,325.35	286,307.71
2013 TOTALS (lbs/day unmitigated)	204.83	403.72	1,889.66	2.64	11,036.68	19.48	11,056.16	2,306.61	17.35	2,323.96	286,420.18
2014 TOTALS (lbs/day unmitigated)	198.19	365.85	1,741.41	2.64	11,036.68	18.04	11,054.72	2,306.61	16.02	2,322.63	286,519.72

2015 TOTALS (lbs/day unmitigated)	191.87	331.41	1,606.51	2.64	11,036.68	16.84	11,053.53	2,306.61	14.91	2,321.51	286,585.66
2016 TOTALS (lbs/day unmitigated)	186.50	300.88	1,491.03	2.64	11,036.68	15.75	11,052.44	2,306.61	13.90	2,320.51	286,597.56
2017 TOTALS (lbs/day unmitigated)	181.77	273.45	1,383.63	2.64	11,036.68	14.72	11,051.40	2,306.61	12.95	2,319.56	286,609.53
2018 TOTALS (lbs/day unmitigated)	177.15	248.70	1,286.44	2.64	11,036.68	13.73	11,050.41	2,306.61	12.06	2,318.66	286,617.58
2019 TOTALS (lbs/day unmitigated)	173.15	226.79	1,198.49	2.64	11,036.68	12.83	11,049.52	2,306.61	11.24	2,317.85	286,620.99
2020 TOTALS (lbs/day unmitigated)	169.56	207.32	1,117.05	2.64	11,036.68	12.09	11,048.78	2,306.61	10.56	2,317.16	286,624.64
2021 TOTALS (lbs/day unmitigated)	159.49	172.68	826.59	2.64	11,036.68	11.26	11,047.94	2,306.61	9.79	2,316.40	286,690.06
2022 TOTALS (lbs/day unmitigated)	159.49	172.68	826.59	2.64	11,036.68	11.26	11,047.94	2,306.61	9.79	2,316.40	286,690.06
2023 TOTALS (lbs/day unmitigated)	159.49	172.68	826.59	2.64	11,036.68	11.26	11,047.94	2,306.61	9.79	2,316.40	286,690.06
2024 TOTALS (lbs/day unmitigated)	159.49	172.68	826.59	2.64	11,036.68	11.26	11,047.94	2,306.61	9.79	2,316.40	286,690.06
2025 TOTALS (lbs/day unmitigated)	159.49	172.68	826.59	2.64	11,036.68	11.26	11,047.94	2,306.61	9.79	2,316.40	286,690.06
2026 TOTALS (lbs/day unmitigated)	154.53	158.68	686.24	2.64	11,036.68	11.48	11,048.17	2,306.61	9.96	2,316.57	286,653.23

2027 TOTALS (lbs/day unmitigated)	154.53	158.68	686.24	2.64	11,036.68	11.48	11,048.17	2,306.61	9.96	2,316.57	286,653.23
2028 TOTALS (lbs/day unmitigated)	154.53	158.68	686.24	2.64	11,036.68	11.48	11,048.17	2,306.61	9.96	2,316.57	286,653.23

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	789.16	289.52	3,796.65	12.05	597.46	575.12	369,519.18

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2,517.86	4,146.42	28,083.99	20.51	4,092.17	791.23	2,060,457.20

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3,307.02	4,435.94	31,880.64	32.56	4,689.63	1,366.35	2,429,976.38

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 1/28/2008-12/31/2008 Active Days: 243	3.97	22.14	12.65	0.00	0.01	1.87	1.88	0.00	1.72	1.72	1,681.61
Asphalt 01/28/2008-05/11/2028	3.97	22.14	12.65	0.00	0.01	1.87	1.88	0.00	1.72	1.72	1,681.61
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.59	21.14	10.74	0.00	0.00	1.82	1.82	0.00	1.68	1.68	1,418.81
Paving On Road Diesel	0.06	0.93	0.32	0.00	0.00	0.04	0.04	0.00	0.04	0.04	123.43
Paving Worker Trips	0.05	0.07	1.59	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.36
Time Slice 1/1/2009-1/9/2009 Active Days: 7	23.99	204.58	103.59	0.01	11,025.23	9.58	11,034.81	2,302.51	8.81	2,311.33	17,959.37
Asphalt 01/28/2008-05/11/2028	3.76	21.07	12.36	0.00	0.01	1.77	1.78	0.00	1.63	1.64	1,681.70
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.39	20.13	10.59	0.00	0.00	1.74	1.74	0.00	1.60	1.60	1,418.81
Paving On Road Diesel	0.06	0.87	0.30	0.00	0.00	0.04	0.04	0.00	0.03	0.03	123.43
Paving Worker Trips	0.04	0.07	1.47	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.45
Fine Grading 01/01/2009-01/11/2028	20.23	183.52	91.23	0.00	11,025.22	7.81	11,033.02	2,302.51	7.18	2,309.69	16,277.67
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	20.11	183.33	87.12	0.00	0.00	7.80	7.80	0.00	7.17	7.17	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.12	0.18	4.11	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.45

Time Slice 1/12/2009-4/7/2009 Active Days: 62	114.28	575.79	2,629.78	2.64	11,036.68	26.11	11,062.79	2,306.61	23.50	2,330.10	285,677.08
Asphalt 01/28/2008-05/11/2028	3.76	21.07	12.36	0.00	0.01	1.77	1.78	0.00	1.63	1.64	1,681.70
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.39	20.13	10.59	0.00	0.00	1.74	1.74	0.00	1.60	1.60	1,418.81
Paving On Road Diesel	0.06	0.87	0.30	0.00	0.00	0.04	0.04	0.00	0.03	0.03	123.43
Paving Worker Trips	0.04	0.07	1.47	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.45
Building 01/11/2009-08/22/2028	90.28	371.21	2,526.19	2.63	11.45	16.53	27.98	4.09	14.68	18.78	267,717.72
Building Off Road Diesel	4.37	24.71	14.63	0.00	0.00	1.81	1.81	0.00	1.67	1.67	2,259.28
Building Vendor Trips	20.19	245.29	235.99	0.47	1.77	10.02	11.79	0.60	9.17	9.77	49,338.28
Building Worker Trips	65.73	101.20	2,275.57	2.16	9.68	4.70	14.38	3.49	3.85	7.34	216,120.16
Fine Grading 01/01/2009-01/11/2028	20.23	183.52	91.23	0.00	11,025.22	7.81	11,033.02	2,302.51	7.18	2,309.69	16,277.67
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	20.11	183.33	87.12	0.00	0.00	7.80	7.80	0.00	7.17	7.17	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.12	0.18	4.11	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.45

Time Slice 4/8/2009-12/31/2009 Active Days: 192	238.17	575.87	2,631.48	2.64	11,036.68	26.11	11,062.80	2,306.61	23.50	2,330.11	285,838.32
Asphalt 01/28/2008-05/11/2028	3.76	21.07	12.36	0.00	0.01	1.77	1.78	0.00	1.63	1.64	1,681.70
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.39	20.13	10.59	0.00	0.00	1.74	1.74	0.00	1.60	1.60	1,418.81
Paving On Road Diesel	0.06	0.87	0.30	0.00	0.00	0.04	0.04	0.00	0.03	0.03	123.43
Paving Worker Trips	0.04	0.07	1.47	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.45
Building 01/11/2009-08/22/2028	90.28	371.21	2,526.19	2.63	11.45	16.53	27.98	4.09	14.68	18.78	267,717.72
Building Off Road Diesel	4.37	24.71	14.63	0.00	0.00	1.81	1.81	0.00	1.67	1.67	2,259.28
Building Vendor Trips	20.19	245.29	235.99	0.47	1.77	10.02	11.79	0.60	9.17	9.77	49,338.28
Building Worker Trips	65.73	101.20	2,275.57	2.16	9.68	4.70	14.38	3.49	3.85	7.34	216,120.16
Coating 04/08/2009-09/05/2028	123.89	0.08	1.70	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.24
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.05	0.08	1.70	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.24
Fine Grading 01/01/2009-01/11/2028	20.23	183.52	91.23	0.00	11,025.22	7.81	11,033.02	2,302.51	7.18	2,309.69	16,277.67
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	20.11	183.33	87.12	0.00	0.00	7.80	7.80	0.00	7.17	7.17	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.12	0.18	4.11	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.45

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Time Slice 1/1/2010-12/31/2010 Active Days: 261	228.86	531.53	2,418.90	**2.64**	**11,036.68**	24.53	11,061.21	**2,306.61**	22.04	2,328.65	286,029.20
Asphalt 01/28/2008-05/11/2028	3.56	20.02	12.09	0.00	0.01	1.72	1.73	0.00	1.58	1.58	1,681.81
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.20	19.17	10.47	0.00	0.00	1.68	1.68	0.00	1.55	1.55	1,418.81
Paving On Road Diesel	0.05	0.79	0.27	0.00	0.00	0.03	0.04	0.00	0.03	0.03	123.43
Paving Worker Trips	0.04	0.06	1.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.56
Building 01/11/2009-08/22/2028	82.07	337.44	2,320.26	2.63	11.45	15.42	26.87	4.09	13.66	17.76	267,908.01
Building Off Road Diesel	4.08	23.31	14.31	0.00	0.00	1.67	1.67	0.00	1.54	1.54	2,259.28
Building Vendor Trips	18.79	222.91	220.24	0.47	1.77	9.05	10.82	0.60	8.28	8.88	49,348.13
Building Worker Trips	59.20	91.22	2,085.71	2.16	9.68	4.70	14.38	3.49	3.85	7.34	216,300.60
Coating 04/08/2009-09/05/2028	123.89	0.07	1.56	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.37
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.07	1.56	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.37
Fine Grading 01/01/2009-01/11/2028	19.34	174.00	84.99	0.00	11,025.22	7.38	11,032.60	2,302.51	6.79	2,309.30	16,278.00
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	19.24	173.83	81.22	0.00	0.00	7.38	7.38	0.00	6.79	6.79	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.11	0.16	3.77	0.00	0.02	0.01	0.03	0.01	0.01	0.01	390.78

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Time Slice 1/3/2011-12/30/2011 Active Days: 260	219.92	486.91	2,227.78	**2.64**	**11,036.68**	22.55	11,059.24	**2,306.61**	20.20	2,326.81	286,178.65
Asphalt 01/28/2008-05/11/2028	3.38	19.01	11.83	0.00	0.01	1.65	1.66	0.00	1.52	1.52	1,681.90
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.02	18.25	10.34	0.00	0.00	1.62	1.62	0.00	1.49	1.49	1,418.81
Paving On Road Diesel	0.05	0.71	0.25	0.00	0.00	0.03	0.03	0.00	0.03	0.03	123.43
Paving Worker Trips	0.03	0.05	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.66
Building 01/11/2009-08/22/2028	74.44	304.12	2,134.98	2.63	11.45	14.17	25.62	4.09	12.49	16.59	268,057.01
Building Off Road Diesel	3.77	21.85	13.95	0.00	0.00	1.57	1.57	0.00	1.45	1.45	2,259.28
Building Vendor Trips	17.36	199.81	205.80	0.47	1.77	8.10	9.88	0.60	7.41	8.01	49,354.05
Building Worker Trips	53.32	82.46	1,915.24	2.16	9.68	4.49	14.17	3.49	3.64	7.13	216,443.68
Coating 04/08/2009-09/05/2028	123.89	0.06	1.43	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.48
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.43	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.48
Fine Grading 01/01/2009-01/11/2028	18.22	163.72	79.54	0.00	11,025.22	6.72	11,031.94	2,302.51	6.19	2,308.69	16,278.26
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	18.12	163.57	76.08	0.00	0.00	6.72	6.72	0.00	6.18	6.18	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.10	0.15	3.46	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.04

Time Slice 1/2/2012-12/31/2012 Active Days: 261	211.99	443.65	2,051.35	**2.64**	**11,036.68**	20.96	11,057.65	**2,306.61**	18.74	2,325.35	286,307.71
Asphalt 01/28/2008-05/11/2028	3.21	18.01	11.60	0.00	0.01	1.56	1.57	0.00	1.44	1.44	1,681.98
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.86	17.34	10.24	0.00	0.00	1.53	1.53	0.00	1.41	1.41	1,418.81
Paving On Road Diesel	0.04	0.62	0.22	0.00	0.00	0.02	0.03	0.00	0.02	0.02	123.43
Paving Worker Trips	0.03	0.05	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.73
Building 01/11/2009-08/22/2028	67.49	271.96	1,963.86	2.63	11.45	13.13	24.58	4.09	11.53	15.63	268,185.68
Building Off Road Diesel	3.48	20.42	13.62	0.00	0.00	1.42	1.42	0.00	1.31	1.31	2,259.28
Building Vendor Trips	15.92	176.86	191.43	0.47	1.77	7.21	8.99	0.60	6.59	7.19	49,362.14
Building Worker Trips	48.10	74.68	1,758.81	2.16	9.68	4.49	14.17	3.49	3.64	7.13	216,564.25
Coating 04/08/2009-09/05/2028	123.88	0.06	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.57
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.04	0.06	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.57
Fine Grading 01/01/2009-01/11/2028	17.40	153.63	74.58	0.00	11,025.22	6.27	11,031.48	2,302.51	5.76	2,308.27	16,278.48
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	17.31	153.50	71.40	0.00	0.00	6.26	6.26	0.00	5.76	5.76	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.09	0.13	3.18	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.26

Time Slice 1/1/2013-12/31/2013 Active Days: 261	204.83	403.72	1,889.66	**2.64**	**11,036.68**	19.48	11,056.16	**2,306.61**	17.35	2,323.96	286,420.18
Asphalt 01/28/2008-05/11/2028	3.03	17.05	11.40	0.00	0.01	1.46	1.47	0.00	1.34	1.34	1,682.05
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.69	16.46	10.15	0.00	0.00	1.43	1.43	0.00	1.32	1.32	1,418.81
Paving On Road Diesel	0.04	0.55	0.20	0.00	0.00	0.02	0.03	0.00	0.02	0.02	123.43
Paving Worker Trips	0.03	0.04	1.04	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.80
Building 01/11/2009-08/22/2028	61.06	242.35	1,807.11	2.63	11.45	12.17	23.62	4.09	10.63	14.72	268,297.82
Building Off Road Diesel	3.19	19.04	13.34	0.00	0.00	1.26	1.26	0.00	1.16	1.16	2,259.28
Building Vendor Trips	14.58	155.87	177.72	0.47	1.77	6.39	8.16	0.60	5.83	6.43	49,371.56
Building Worker Trips	43.30	67.45	1,616.05	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,666.98
Coating 04/08/2009-09/05/2028	123.88	0.05	1.21	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.65
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	1.21	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.65
Fine Grading 01/01/2009-01/11/2028	16.86	144.27	69.95	0.00	11,025.22	5.85	11,031.06	2,302.51	5.38	2,307.89	16,278.66
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	16.78	144.14	67.03	0.00	0.00	5.84	5.84	0.00	5.37	5.37	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.08	0.12	2.92	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.44

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Time Slice 1/1/2014-12/31/2014 Active Days: 261	198.19	365.85	1,741.41	**2.64**	**11,036.68**	18.04	11,054.72	**2,306.61**	16.02	2,322.63	286,519.72
Asphalt 01/28/2008-05/11/2028	2.88	16.13	11.21	0.00	0.01	1.37	1.38	0.00	1.26	1.26	1,682.11
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.54	15.61	10.07	0.00	0.00	1.34	1.34	0.00	1.24	1.24	1,418.81
Paving On Road Diesel	0.04	0.48	0.18	0.00	0.00	0.02	0.02	0.00	0.02	0.02	123.43
Paving Worker Trips	0.03	0.04	0.96	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.86
Building 01/11/2009-08/22/2028	55.39	215.88	1,662.85	2.63	11.45	11.28	22.73	4.09	9.81	13.90	268,397.08
Building Off Road Diesel	2.93	17.65	13.06	0.00	0.00	1.11	1.11	0.00	1.02	1.02	2,259.28
Building Vendor Trips	13.34	137.01	164.93	0.47	1.77	5.66	7.43	0.60	5.16	5.76	49,381.23
Building Worker Trips	39.13	61.22	1,484.86	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,756.57
Coating 04/08/2009-09/05/2028	123.87	0.05	1.11	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.71
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	1.11	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.71
Fine Grading 01/01/2009-01/11/2028	16.05	133.80	66.24	0.00	11,025.22	5.39	11,030.61	2,302.51	4.96	2,307.47	16,278.82
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	15.98	133.68	63.56	0.00	0.00	5.38	5.38	0.00	4.95	4.95	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.11	2.68	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.60

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Time Slice 1/1/2015-12/31/2015 Active Days: 261	191.87	331.41	1,606.51	**2.64**	**11,036.68**	16.84	11,053.53	**2,306.61**	14.91	2,321.51	286,585.66
Asphalt 01/28/2008-05/11/2028	2.71	15.11	11.02	0.00	0.01	1.26	1.27	0.00	1.16	1.17	1,682.14
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.38	14.65	9.98	0.00	0.00	1.25	1.25	0.00	1.15	1.15	1,418.81
Paving On Road Diesel	0.03	0.42	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	123.43
Paving Worker Trips	0.02	0.04	0.88	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	50.12	192.81	1,531.85	2.63	11.45	10.61	22.06	4.09	9.17	13.26	268,462.84
Building Off Road Diesel	2.69	16.17	12.80	0.00	0.00	1.03	1.03	0.00	0.94	0.94	2,259.28
Building Vendor Trips	12.25	121.10	153.36	0.47	1.77	5.05	6.82	0.60	4.59	5.19	49,390.69
Building Worker Trips	35.17	55.54	1,365.69	2.16	9.68	4.54	14.21	3.49	3.64	7.13	216,812.86
Coating 04/08/2009-09/05/2028	123.87	0.04	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.76
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.04	1.02	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.76
Fine Grading 01/01/2009-01/11/2028	15.16	123.44	62.62	0.00	11,025.22	4.97	11,030.19	2,302.51	4.57	2,307.08	16,278.92
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	15.10	123.34	60.15	0.00	0.00	4.96	4.96	0.00	4.56	4.56	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.10	2.47	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.71

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Time Slice 1/1/2016-12/30/2016 Active Days: 261	186.50	300.88	1,491.03	**2.64**	**11,036.68**	15.75	11,052.44	**2,306.61**	13.90	2,320.51	286,597.56
Asphalt 01/28/2008-05/11/2028	2.55	14.12	10.87	0.00	0.01	1.16	1.17	0.00	1.07	1.07	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.22	13.72	9.91	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,418.81
Paving On Road Diesel	0.03	0.37	0.15	0.00	0.00	0.01	0.02	0.00	0.01	0.01	123.43
Paving Worker Trips	0.02	0.03	0.82	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	45.74	172.79	1,419.59	2.63	11.45	9.94	21.39	4.09	8.55	12.65	268,474.71
Building Off Road Diesel	2.47	14.84	12.61	0.00	0.00	0.88	0.88	0.00	0.81	0.81	2,259.28
Building Vendor Trips	11.32	107.23	143.39	0.47	1.77	4.52	6.29	0.60	4.11	4.71	49,396.47
Building Worker Trips	31.96	50.72	1,263.60	2.16	9.68	4.54	14.21	3.49	3.64	7.13	216,818.97
Coating 04/08/2009-09/05/2028	123.87	0.04	0.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.76
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.04	0.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.76
Fine Grading 01/01/2009-01/11/2028	14.35	113.93	59.62	0.00	11,025.22	4.66	11,029.87	2,302.51	4.28	2,306.79	16,278.94
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	14.29	113.84	57.34	0.00	0.00	4.65	4.65	0.00	4.28	4.28	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.09	2.28	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.72

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Time Slice 1/2/2017-12/29/2017 Active Days: 260	181.77	273.45	1,383.63	**2.64**	**11,036.68**	14.72	11,051.40	**2,306.61**	12.95	2,319.56	286,609.53
Asphalt 01/28/2008-05/11/2028	2.41	13.22	10.72	0.00	0.01	1.07	1.08	0.00	0.98	0.99	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.09	12.86	9.83	0.00	0.00	1.05	1.05	0.00	0.97	0.97	1,418.81
Paving On Road Diesel	0.03	0.33	0.14	0.00	0.00	0.01	0.02	0.00	0.01	0.01	123.43
Paving Worker Trips	0.02	0.03	0.75	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	41.84	155.46	1,315.32	2.63	11.45	9.41	20.86	4.09	8.07	12.16	268,486.67
Building Off Road Diesel	2.25	13.62	12.45	0.00	0.00	0.77	0.77	0.00	0.71	0.71	2,259.28
Building Vendor Trips	10.46	95.64	134.36	0.47	1.77	4.10	5.87	0.60	3.72	4.32	49,402.36
Building Worker Trips	29.14	46.20	1,168.51	2.16	9.68	4.54	14.21	3.49	3.64	7.13	216,825.03
Coating 04/08/2009-09/05/2028	123.87	0.03	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	13.65	104.73	56.71	0.00	11,025.22	4.24	11,029.45	2,302.51	3.90	2,306.40	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	13.60	104.65	54.60	0.00	0.00	4.23	4.23	0.00	3.89	3.89	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.08	2.11	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.73

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Time Slice 1/1/2018-12/31/2018 Active Days: 261	177.15	248.70	1,286.44	**2.64**	**11,036.68**	13.73	11,050.41	**2,306.61**	12.06	2,318.66	286,617.58
Asphalt 01/28/2008-05/11/2028	2.29	12.35	10.61	0.00	0.01	0.98	0.99	0.00	0.90	0.90	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.97	12.02	9.79	0.00	0.00	0.96	0.96	0.00	0.89	0.89	1,418.81
Paving On Road Diesel	0.03	0.30	0.12	0.00	0.00	0.01	0.02	0.00	0.01	0.01	123.43
Paving Worker Trips	0.02	0.03	0.70	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	38.20	140.27	1,220.55	2.63	11.45	8.93	20.38	4.09	7.64	11.74	268,494.71
Building Off Road Diesel	2.03	12.45	12.26	0.00	0.00	0.67	0.67	0.00	0.62	0.62	2,259.28
Building Vendor Trips	9.71	85.57	126.13	0.47	1.77	3.74	5.51	0.60	3.39	3.99	49,408.04
Building Worker Trips	26.45	42.24	1,082.16	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,827.39
Coating 04/08/2009-09/05/2028	123.87	0.03	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	12.80	96.06	54.47	0.00	11,025.22	3.81	11,029.03	2,302.51	3.51	2,306.02	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	12.75	95.98	52.52	0.00	0.00	3.81	3.81	0.00	3.50	3.50	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.08	1.96	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.73

Time Slice 1/1/2019-12/31/2019 Active Days: 261	173.15	226.79	1,198.49	**2.64**	**11,036.68**	12.83	11,049.52	**2,306.61**	11.24	2,317.85	286,620.99
Asphalt 01/28/2008-05/11/2028	2.14	11.56	10.46	0.00	0.01	0.89	0.90	0.00	0.82	0.82	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.27	9.70	0.00	0.00	0.88	0.88	0.00	0.81	0.81	1,418.81
Paving On Road Diesel	0.03	0.27	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.02	0.02	0.65	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	34.91	127.13	1,134.96	2.63	11.45	8.51	19.96	4.09	7.27	11.36	268,498.13
Building Off Road Diesel	1.88	11.39	12.14	0.00	0.00	0.57	0.57	0.00	0.52	0.52	2,259.28
Building Vendor Trips	9.08	77.13	118.74	0.47	1.77	3.43	5.20	0.60	3.11	3.71	49,413.35
Building Worker Trips	23.96	38.60	1,004.08	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,825.50
Coating 04/08/2009-09/05/2028	123.86	0.03	0.75	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.75	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	12.23	88.08	52.33	0.00	11,025.22	3.43	11,028.65	2,302.51	3.15	2,305.66	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	12.19	88.01	50.51	0.00	0.00	3.42	3.42	0.00	3.15	3.15	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.81	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.73

Time Slice 1/1/2020-12/31/2020 Active Days: 262	169.56	207.32	1,117.05	**2.64**	**11,036.68**	12.09	11,048.78	**2,306.61**	10.56	2,317.16	286,624.64
Asphalt 01/28/2008-05/11/2028	2.01	10.80	10.36	0.00	0.01	0.83	0.84	0.00	0.77	0.77	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.24	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.60	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.90
Building 01/11/2009-08/22/2028	32.16	115.94	1,055.45	2.63	11.45	8.17	19.62	4.09	6.95	11.05	268,501.78
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	8.47	69.70	111.88	0.47	1.77	3.16	4.93	0.60	2.86	3.46	49,418.20
Building Worker Trips	21.98	35.74	931.54	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,824.30
Coating 04/08/2009-09/05/2028	123.86	0.03	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.69	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	11.53	80.55	50.54	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.68	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.73

Time Slice 1/1/2021-12/31/2021 Active Days: 261	159.49	172.68	826.59	2.64	**11,036.68**	11.26	11,047.94	**2,306.61**	9.79	2,316.40	**286,690.06**
Asphalt 01/28/2008-05/11/2028	2.00	10.71	10.17	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.18
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.16	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 01/11/2009-08/22/2028	22.12	81.42	765.87	2.63	11.45	7.34	18.79	4.09	6.19	10.28	268,567.05
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	6.45	46.71	87.04	0.47	1.77	2.33	4.10	0.60	2.10	2.70	49,438.35
Building Worker Trips	13.96	24.21	666.80	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,869.43
Coating 04/08/2009-09/05/2028	123.86	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Fine Grading 01/01/2009-01/11/2028	11.51	80.53	50.06	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,279.03
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	1.20	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.81

Time Slice 1/3/2022-12/30/2022 Active Days: 260	159.49	172.68	826.59	2.64	**11,036.68**	11.26	11,047.94	**2,306.61**	9.79	2,316.40	**286,690.06**
Asphalt 01/28/2008-05/11/2028	2.00	10.71	10.17	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.18
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.16	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 01/11/2009-08/22/2028	22.12	81.42	765.87	2.63	11.45	7.34	18.79	4.09	6.19	10.28	268,567.05
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	6.45	46.71	87.04	0.47	1.77	2.33	4.10	0.60	2.10	2.70	49,438.35
Building Worker Trips	13.96	24.21	666.80	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,869.43
Coating 04/08/2009-09/05/2028	123.86	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Fine Grading 01/01/2009-01/11/2028	11.51	80.53	50.06	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,279.03
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	1.20	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.81

Time Slice 1/2/2023-12/29/2023 Active Days: 260	159.49	172.68	826.59	2.64	**11,036.68**	11.26	11,047.94	**2,306.61**	9.79	2,316.40	**286,690.06**
Asphalt 01/28/2008-05/11/2028	2.00	10.71	10.17	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.18
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.16	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 01/11/2009-08/22/2028	22.12	81.42	765.87	2.63	11.45	7.34	18.79	4.09	6.19	10.28	268,567.05
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	6.45	46.71	87.04	0.47	1.77	2.33	4.10	0.60	2.10	2.70	49,438.35
Building Worker Trips	13.96	24.21	666.80	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,869.43
Coating 04/08/2009-09/05/2028	123.86	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Fine Grading 01/01/2009-01/11/2028	11.51	80.53	50.06	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,279.03
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	1.20	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.81

Time Slice 1/1/2024-12/31/2024 Active Days: 262	159.49	172.68	826.59	2.64	**11,036.68**	11.26	11,047.94	**2,306.61**	9.79	2,316.40	**286,690.06**
Asphalt 01/28/2008-05/11/2028	2.00	10.71	10.17	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.18
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.16	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 01/11/2009-08/22/2028	22.12	81.42	765.87	2.63	11.45	7.34	18.79	4.09	6.19	10.28	268,567.05
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	6.45	46.71	87.04	0.47	1.77	2.33	4.10	0.60	2.10	2.70	49,438.35
Building Worker Trips	13.96	24.21	666.80	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,869.43
Coating 04/08/2009-09/05/2028	123.86	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Fine Grading 01/01/2009-01/11/2028	11.51	80.53	50.06	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,279.03
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	1.20	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.81

Time Slice 1/1/2025-12/31/2025 Active Days: 261	159.49	172.68	826.59	2.64	**11,036.68**	11.26	11,047.94	**2,306.61**	9.79	2,316.40	**286,690.06**
Asphalt 01/28/2008-05/11/2028	2.00	10.71	10.17	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.18
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.16	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	123.43
Paving Worker Trips	0.01	0.02	0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.93
Building 01/11/2009-08/22/2028	22.12	81.42	765.87	2.63	11.45	7.34	18.79	4.09	6.19	10.28	268,567.05
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	6.45	46.71	87.04	0.47	1.77	2.33	4.10	0.60	2.10	2.70	49,438.35
Building Worker Trips	13.96	24.21	666.80	2.16	9.68	4.51	14.19	3.49	3.64	7.13	216,869.43
Coating 04/08/2009-09/05/2028	123.86	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.50	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.80
Fine Grading 01/01/2009-01/11/2028	11.51	80.53	50.06	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,279.03
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.04	1.20	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.81

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Time Slice 1/1/2026-12/31/2026 Active Days: 261	154.53	158.68	686.24	2.64	**11,036.68**	11.48	11,048.17	**2,306.61**	9.96	2,316.57	286,653.23
Asphalt 01/28/2008-05/11/2028	1.99	10.68	10.07	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	123.43
Paving Worker Trips	0.01	0.01	0.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.91
Building 01/11/2009-08/22/2028	17.18	67.46	625.94	2.63	11.45	7.57	19.02	4.09	6.36	10.45	268,530.35
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	5.56	38.58	75.23	0.47	1.77	2.05	3.82	0.60	1.84	2.44	49,441.95
Building Worker Trips	9.92	18.38	538.68	2.16	9.68	5.02	14.70	3.49	4.06	7.55	216,829.12
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	11.51	80.52	49.83	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.97	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.74

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Time Slice 1/1/2027-12/31/2027 Active Days: 261	154.53	158.68	686.24	2.64	**11,036.68**	11.48	11,048.17	**2,306.61**	9.96	2,316.57	286,653.23
Asphalt 01/28/2008-05/11/2028	1.99	10.68	10.07	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	123.43
Paving Worker Trips	0.01	0.01	0.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.91
Building 01/11/2009-08/22/2028	17.18	67.46	625.94	2.63	11.45	7.57	19.02	4.09	6.36	10.45	268,530.35
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	5.56	38.58	75.23	0.47	1.77	2.05	3.82	0.60	1.84	2.44	49,441.95
Building Worker Trips	9.92	18.38	538.68	2.16	9.68	5.02	14.70	3.49	4.06	7.55	216,829.12
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	11.51	80.52	49.83	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.97	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.74

Time Slice 1/3/2028-1/11/2028 Active Days: 7	154.53	158.68	686.24	2.64	**11,036.68**	11.48	11,048.17	**2,306.61**	9.96	2,316.57	286,653.23
Asphalt 01/28/2008-05/11/2028	1.99	10.68	10.07	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	123.43
Paving Worker Trips	0.01	0.01	0.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.91
Building 01/11/2009-08/22/2028	17.18	67.46	625.94	2.63	11.45	7.57	19.02	4.09	6.36	10.45	268,530.35
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	5.56	38.58	75.23	0.47	1.77	2.05	3.82	0.60	1.84	2.44	49,441.95
Building Worker Trips	9.92	18.38	538.68	2.16	9.68	5.02	14.70	3.49	4.06	7.55	216,829.12
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Fine Grading 01/01/2009-01/11/2028	11.51	80.52	49.83	0.00	11,025.22	3.08	11,028.30	2,302.51	2.83	2,305.34	16,278.95
Fine Grading Dust	0.00	0.00	0.00	0.00	11,025.20	0.00	11,025.20	2,302.50	0.00	2,302.50	0.00
Fine Grading Off Road Diesel	11.49	80.49	48.86	0.00	0.00	3.07	3.07	0.00	2.83	2.83	15,887.22
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.97	0.00	0.02	0.01	0.03	0.01	0.01	0.01	391.74

Time Slice 1/12/2028-5/11/2028 Active Days: 87	143.02	78.16	636.41	2.63	11.47	8.40	19.87	4.10	7.13	11.23	270,374.28
Asphalt 01/28/2008-05/11/2028	1.99	10.68	10.07	0.00	0.01	0.83	0.84	0.00	0.76	0.77	1,682.15
Paving Off-Gas	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.70	10.53	9.66	0.00	0.00	0.82	0.82	0.00	0.75	0.75	1,418.81
Paving On Road Diesel	0.02	0.13	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	123.43
Paving Worker Trips	0.01	0.01	0.35	0.00	0.01	0.00	0.01	0.00	0.00	0.00	139.91
Building 01/11/2009-08/22/2028	17.18	67.46	625.94	2.63	11.45	7.57	19.02	4.09	6.36	10.45	268,530.35
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	5.56	38.58	75.23	0.47	1.77	2.05	3.82	0.60	1.84	2.44	49,441.95
Building Worker Trips	9.92	18.38	538.68	2.16	9.68	5.02	14.70	3.49	4.06	7.55	216,829.12
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Time Slice 5/12/2028-8/22/2028 Active Days: 73	141.03	67.48	626.34	2.63	11.46	7.57	19.03	4.10	6.36	10.46	268,692.12
Building 01/11/2009-08/22/2028	17.18	67.46	625.94	2.63	11.45	7.57	19.02	4.09	6.36	10.45	268,530.35
Building Off Road Diesel	1.71	10.50	12.03	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,259.28
Building Vendor Trips	5.56	38.58	75.23	0.47	1.77	2.05	3.82	0.60	1.84	2.44	49,441.95
Building Worker Trips	9.92	18.38	538.68	2.16	9.68	5.02	14.70	3.49	4.06	7.55	216,829.12
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77

Time Slice 8/23/2028-9/5/2028 Active Days: 10	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Coating 04/08/2009-09/05/2028	123.85	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77
Architectural Coating	123.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.40	0.00	0.01	0.00	0.01	0.00	0.00	0.01	161.77

Phase Assumptions

Phase: Fine Grading 1/1/2009 - 1/11/2028 - Default Fine Site Grading Description

Total Acres Disturbed: 2205.06

Maximum Daily Acreage Disturbed: 551.26

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

3 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/28/2008 - 5/11/2028 - Default Paving Description

Acres to be Paved: 551.26

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/11/2009 - 8/22/2028 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 4/8/2009 - 9/5/2028 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	14.52	195.93	137.97	0.00	0.36	0.36	240,036.76
Hearth	403.13	93.59	3,658.68	12.05	597.10	574.76	129,482.42
Landscaping - No Winter Emissions							
Consumer Products	200.12						
Architectural Coatings	171.39						
TOTALS (lbs/day, unmitigated)	789.16	289.52	3,796.65	12.05	597.46	575.12	369,519.18

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	292.52	476.46	3,306.85	2.39	472.10	91.41	240,014.14
Apartments low rise	20.82	33.80	234.57	0.17	33.49	6.48	17,025.65
Condo/townhouse general	40.70	66.06	458.45	0.33	65.45	12.67	33,275.05
Mobile home park	6.43	10.42	72.30	0.05	10.32	2.00	5,247.42
Place of worship	31.85	52.36	353.30	0.26	51.66	9.99	25,973.87
City park	0.76	1.19	8.00	0.01	1.17	0.23	588.73
School/Daycare	106.81	176.29	1,189.17	0.87	173.87	33.61	87,404.98
Commercial	1,460.68	2,422.36	16,339.94	11.95	2,389.09	461.83	1,200,998.87
Industrial	557.29	907.48	6,121.41	4.48	895.02	173.01	449,928.49
TOTALS (lbs/day, unmitigated)	2,517.86	4,146.42	28,083.99	20.51	4,092.17	791.23	2,060,457.20

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 50 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,429.00	9.57	dwelling units	3,344.00	32,002.08	273,608.18
Apartments low rise	40.40	6.90	dwelling units	329.00	2,270.10	19,408.67

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	91.90	6.90	dwelling units	643.00	4,436.70	37,932.46
Mobile home park	62.70	5.98	dwelling units	117.00	699.66	5,981.88
Place of worship		9.11	1000 sq ft	444.00	4,044.84	29,952.04
City park		1.59	acres	57.10	90.79	678.65
School/Daycare		14.49	1000 sq ft	944.00	13,678.56	100,810.99
Commercial		45.04	1000 sq ft	4,173.00	187,951.92	1,385,205.71
Industrial		4.96	1000 sq ft	14,196.00	70,412.16	518,937.64
					315,586.81	2,372,516.22

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.7	1.3	98.3	0.4
Light Truck < 3750 lbs	10.0	3.0	90.0	7.0
Light Truck 3751-5750 lbs	22.5	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.1	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	6.2	18.8	75.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	65.7	34.3	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Place of worship				3.0	1.5	95.5
City park				5.0	2.5	92.5
School/Daycare				2.0	1.0	97.0
Commercial				2.0	1.0	97.0
Industrial				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\smyers\Application Data\Urbemis\Version9a\Projects\URBEMIS1\City of Orland 2028 Conditions.urb924

Project Name: Orland 2028 Conditions

Project Location: Sacramento County AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (tons/year unmitigated)	0.48	2.69	1.54	0.00	0.00	0.23	0.23	0.00	0.21	0.21	204.32
2009 TOTALS (tons/year unmitigated)	26.49	73.85	334.51	0.34	1,440.25	3.35	1,443.60	301.00	3.02	304.01	36,359.33
2010 TOTALS (tons/year unmitigated)	29.87	69.36	315.67	0.34	1,440.29	3.20	1,443.49	301.01	2.88	303.89	37,326.81
2011 TOTALS (tons/year unmitigated)	28.59	63.30	289.61	0.34	1,434.77	2.93	1,437.70	299.86	2.63	302.49	37,203.22
2012 TOTALS (tons/year unmitigated)	27.66	57.90	267.70	0.34	1,440.29	2.74	1,443.02	301.01	2.45	303.46	37,363.16
2013 TOTALS (tons/year unmitigated)	26.73	52.69	246.60	0.34	1,440.29	2.54	1,442.83	301.01	2.26	303.28	37,377.83
2014 TOTALS (tons/year unmitigated)	25.86	47.74	227.25	0.34	1,440.29	2.35	1,442.64	301.01	2.09	303.10	37,390.82

2015 TOTALS (tons/year unmitigated)	25.04	43.25	209.65	0.34	1,440.29	2.20	1,442.49	301.01	1.95	302.96	37,399.43
2016 TOTALS (tons/year unmitigated)	24.34	39.27	194.58	0.34	1,440.29	2.06	1,442.34	301.01	1.81	302.83	37,400.98
2017 TOTALS (tons/year unmitigated)	23.63	35.55	179.87	0.34	1,434.77	1.91	1,436.68	299.86	1.68	301.54	37,259.24
2018 TOTALS (tons/year unmitigated)	23.12	32.46	167.88	0.34	1,440.29	1.79	1,442.08	301.01	1.57	302.59	37,403.59
2019 TOTALS (tons/year unmitigated)	22.60	29.60	156.40	0.34	1,440.29	1.67	1,441.96	301.01	1.47	302.48	37,404.04
2020 TOTALS (tons/year unmitigated)	22.21	27.16	146.33	0.35	1,445.81	1.58	1,447.39	302.17	1.38	303.55	37,547.83
2021 TOTALS (tons/year unmitigated)	20.81	22.53	107.87	0.34	1,440.29	1.47	1,441.76	301.01	1.28	302.29	37,413.05
2022 TOTALS (tons/year unmitigated)	20.73	22.45	107.46	0.34	1,434.77	1.46	1,436.23	299.86	1.27	301.13	37,269.71
2023 TOTALS (tons/year unmitigated)	20.73	22.45	107.46	0.34	1,434.77	1.46	1,436.23	299.86	1.27	301.13	37,269.71
2024 TOTALS (tons/year unmitigated)	20.89	22.62	108.28	0.35	1,445.81	1.47	1,447.28	302.17	1.28	303.45	37,556.40
2025 TOTALS (tons/year unmitigated)	20.81	22.53	107.87	0.34	1,440.29	1.47	1,441.76	301.01	1.28	302.29	37,413.05
2026 TOTALS (tons/year unmitigated)	20.17	20.71	89.55	0.34	1,440.29	1.50	1,441.79	301.01	1.30	302.31	37,408.25

2027 TOTALS (tons/year unmitigated)	20.17	20.71	89.55	0.34	1,440.29	1.50	1,441.79	301.01	1.30	302.31	37,408.25
2028 TOTALS (tons/year unmitigated)	12.53	6.42	52.95	0.22	39.55	0.68	40.23	8.40	0.58	8.98	22,572.64

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	89.54	38.87	189.82	0.49	24.52	23.59	47,994.52

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	480.17	589.51	5,647.11	4.37	746.81	144.38	435,997.30

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	569.71	628.38	5,836.93	4.86	771.33	167.97	483,991.82

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

2008	0.48	2.69	1.54	0.00	0.00	0.23	0.23	0.00	0.21	0.21	204.32
Asphalt 01/28/2008-05/11/2028	0.48	2.69	1.54	0.00	0.00	0.23	0.23	0.00	0.21	0.21	204.32
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.44	2.57	1.30	0.00	0.00	0.22	0.22	0.00	0.20	0.20	172.39
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	15.00
Paving Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.93

2009	26.49	73.85	334.51	0.34	1,440.25	3.35	1,443.60	301.00	3.02	304.01	36,359.33
Asphalt 01/28/2008-05/11/2028	0.49	2.75	1.61	0.00	0.00	0.23	0.23	0.00	0.21	0.21	219.46
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.44	2.63	1.38	0.00	0.00	0.23	0.23	0.00	0.21	0.21	185.16
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	16.11
Paving Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.20
Fine Grading 01/01/2009-01/11/2028	2.64	23.95	11.91	0.00	1,438.79	1.02	1,439.81	300.48	0.94	301.41	2,124.24
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	2.62	23.92	11.37	0.00	0.00	1.02	1.02	0.00	0.94	0.94	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.02	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.95
Building 01/11/2009-08/22/2028	11.47	47.14	320.83	0.33	1.45	2.10	3.55	0.52	1.86	2.38	34,000.15
Building Off Road Diesel	0.55	3.14	1.86	0.00	0.00	0.23	0.23	0.00	0.21	0.21	286.93
Building Vendor Trips	2.56	31.15	29.97	0.06	0.22	1.27	1.50	0.08	1.16	1.24	6,265.96
Building Worker Trips	8.35	12.85	289.00	0.27	1.23	0.60	1.83	0.44	0.49	0.93	27,447.26
Coating 04/08/2009-09/05/2028	11.89	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.48
Architectural Coating	11.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.48

2010	29.87	69.36	315.67	0.34	1,440.29	3.20	1,443.49	301.01	2.88	303.89	37,326.81
Asphalt 01/28/2008-05/11/2028	0.47	2.61	1.58	0.00	0.00	0.22	0.23	0.00	0.21	0.21	219.48
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.42	2.50	1.37	0.00	0.00	0.22	0.22	0.00	0.20	0.20	185.16
Paving On Road Diesel	0.01	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.21
Building 01/11/2009-08/22/2028	10.71	44.04	302.79	0.34	1.49	2.01	3.51	0.53	1.78	2.32	34,962.00
Building Off Road Diesel	0.53	3.04	1.87	0.00	0.00	0.22	0.22	0.00	0.20	0.20	294.84
Building Vendor Trips	2.45	29.09	28.74	0.06	0.23	1.18	1.41	0.08	1.08	1.16	6,439.93
Building Worker Trips	7.73	11.90	272.19	0.28	1.26	0.61	1.88	0.46	0.50	0.96	28,227.23
Coating 04/08/2009-09/05/2028	16.17	0.01	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.06
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.06
Fine Grading 01/01/2009-01/11/2028	2.52	22.71	11.09	0.00	1,438.79	0.96	1,439.75	300.48	0.89	301.36	2,124.28
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	2.51	22.69	10.60	0.00	0.00	0.96	0.96	0.00	0.89	0.89	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.00

2011	28.59	63.30	289.61	0.34	1,434.77	2.93	1,437.70	299.86	2.63	302.49	37,203.22
Asphalt 01/28/2008-05/11/2028	0.44	2.47	1.54	0.00	0.00	0.21	0.22	0.00	0.20	0.20	218.65
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.39	2.37	1.34	0.00	0.00	0.21	0.21	0.00	0.19	0.19	184.45
Paving On Road Diesel	0.01	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.05
Paving Worker Trips	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.16
Building 01/11/2009-08/22/2028	9.68	39.54	277.55	0.34	1.49	1.84	3.33	0.53	1.62	2.16	34,847.41
Building Off Road Diesel	0.49	2.84	1.81	0.00	0.00	0.20	0.20	0.00	0.19	0.19	293.71
Building Vendor Trips	2.26	25.98	26.75	0.06	0.23	1.05	1.28	0.08	0.96	1.04	6,416.03
Building Worker Trips	6.93	10.72	248.98	0.28	1.26	0.58	1.84	0.45	0.47	0.93	28,137.68
Coating 04/08/2009-09/05/2028	16.11	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.99
Architectural Coating	16.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.99
Fine Grading 01/01/2009-01/11/2028	2.37	21.28	10.34	0.00	1,433.28	0.87	1,434.15	299.33	0.80	300.13	2,116.17
Fine Grading Dust	0.00	0.00	0.00	0.00	1,433.28	0.00	1,433.28	299.33	0.00	299.33	0.00
Fine Grading Off Road Diesel	2.36	21.26	9.89	0.00	0.00	0.87	0.87	0.00	0.80	0.80	2,065.34
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.84

2012	27.66	57.90	267.70	0.34	1,440.29	2.74	1,443.02	301.01	2.45	303.46	37,363.16
Asphalt 01/28/2008-05/11/2028	0.42	2.35	1.51	0.00	0.00	0.20	0.21	0.00	0.19	0.19	219.50
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.37	2.26	1.34	0.00	0.00	0.20	0.20	0.00	0.18	0.18	185.16
Paving On Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.01	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.24
Building 01/11/2009-08/22/2028	8.81	35.49	256.28	0.34	1.49	1.71	3.21	0.53	1.51	2.04	34,998.23
Building Off Road Diesel	0.45	2.67	1.78	0.00	0.00	0.19	0.19	0.00	0.17	0.17	294.84
Building Vendor Trips	2.08	23.08	24.98	0.06	0.23	0.94	1.17	0.08	0.86	0.94	6,441.76
Building Worker Trips	6.28	9.75	229.52	0.28	1.26	0.59	1.85	0.46	0.47	0.93	28,261.63
Coating 04/08/2009-09/05/2028	16.17	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.09
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.09
Fine Grading 01/01/2009-01/11/2028	2.27	20.05	9.73	0.00	1,438.79	0.82	1,439.61	300.48	0.75	301.23	2,124.34
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	2.26	20.03	9.32	0.00	0.00	0.82	0.82	0.00	0.75	0.75	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.06

2013	26.73	52.69	246.60	0.34	1,440.29	2.54	1,442.83	301.01	2.26	303.28	37,377.83
Asphalt 01/28/2008-05/11/2028	0.40	2.23	1.49	0.00	0.00	0.19	0.19	0.00	0.18	0.18	219.51
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.35	2.15	1.32	0.00	0.00	0.19	0.19	0.00	0.17	0.17	185.16
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.24
Building 01/11/2009-08/22/2028	7.97	31.63	235.83	0.34	1.49	1.59	3.08	0.53	1.39	1.92	35,012.87
Building Off Road Diesel	0.42	2.48	1.74	0.00	0.00	0.17	0.17	0.00	0.15	0.15	294.84
Building Vendor Trips	1.90	20.34	23.19	0.06	0.23	0.83	1.07	0.08	0.76	0.84	6,442.99
Building Worker Trips	5.65	8.80	210.89	0.28	1.26	0.59	1.85	0.46	0.47	0.93	28,275.04
Coating 04/08/2009-09/05/2028	16.17	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.10
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.10
Fine Grading 01/01/2009-01/11/2028	2.20	18.83	9.13	0.00	1,438.79	0.76	1,439.55	300.48	0.70	301.18	2,124.37
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	2.19	18.81	8.75	0.00	0.00	0.76	0.76	0.00	0.70	0.70	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.08

2014	25.86	47.74	227.25	0.34	1,440.29	2.35	1,442.64	301.01	2.09	303.10	37,390.82
Asphalt 01/28/2008-05/11/2028	0.38	2.11	1.46	0.00	0.00	0.18	0.18	0.00	0.16	0.16	219.51
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.33	2.04	1.31	0.00	0.00	0.18	0.18	0.00	0.16	0.16	185.16
Paving On Road Diesel	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.25
Building 01/11/2009-08/22/2028	7.23	28.17	217.00	0.34	1.49	1.47	2.97	0.53	1.28	1.81	35,025.82
Building Off Road Diesel	0.38	2.30	1.70	0.00	0.00	0.14	0.14	0.00	0.13	0.13	294.84
Building Vendor Trips	1.74	17.88	21.52	0.06	0.23	0.74	0.97	0.08	0.67	0.75	6,444.25
Building Worker Trips	5.11	7.99	193.77	0.28	1.26	0.59	1.85	0.46	0.47	0.93	28,286.73
Coating 04/08/2009-09/05/2028	16.17	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.10
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.10
Fine Grading 01/01/2009-01/11/2028	2.09	17.46	8.64	0.00	1,438.79	0.70	1,439.49	300.48	0.65	301.12	2,124.39
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	2.08	17.45	8.29	0.00	0.00	0.70	0.70	0.00	0.65	0.65	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.10

2015	25.04	43.25	209.65	0.34	1,440.29	2.20	1,442.49	301.01	1.95	302.96	37,399.43
Asphalt 01/28/2008-05/11/2028	0.35	1.97	1.44	0.00	0.00	0.17	0.17	0.00	0.15	0.15	219.52
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.31	1.91	1.30	0.00	0.00	0.16	0.16	0.00	0.15	0.15	185.16
Paving On Road Diesel	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.26
Building 01/11/2009-08/22/2028	6.54	25.16	199.91	0.34	1.49	1.38	2.88	0.53	1.20	1.73	35,034.40
Building Off Road Diesel	0.35	2.11	1.67	0.00	0.00	0.13	0.13	0.00	0.12	0.12	294.84
Building Vendor Trips	1.60	15.80	20.01	0.06	0.23	0.66	0.89	0.08	0.60	0.68	6,445.49
Building Worker Trips	4.59	7.25	178.22	0.28	1.26	0.59	1.85	0.46	0.47	0.93	28,294.08
Coating 04/08/2009-09/05/2028	16.17	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Fine Grading 01/01/2009-01/11/2028	1.98	16.11	8.17	0.00	1,438.79	0.65	1,439.44	300.48	0.60	301.07	2,124.40
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	1.97	16.10	7.85	0.00	0.00	0.65	0.65	0.00	0.60	0.60	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.12

2016	24.34	39.27	194.58	0.34	1,440.29	2.06	1,442.34	301.01	1.81	302.83	37,400.98
Asphalt 01/28/2008-05/11/2028	0.33	1.84	1.42	0.00	0.00	0.15	0.15	0.00	0.14	0.14	219.52
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.29	1.79	1.29	0.00	0.00	0.15	0.15	0.00	0.14	0.14	185.16
Paving On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.26
Building 01/11/2009-08/22/2028	5.97	22.55	185.26	0.34	1.49	1.30	2.79	0.53	1.12	1.65	35,035.95
Building Off Road Diesel	0.32	1.94	1.65	0.00	0.00	0.11	0.11	0.00	0.11	0.11	294.84
Building Vendor Trips	1.48	13.99	18.71	0.06	0.23	0.59	0.82	0.08	0.54	0.61	6,446.24
Building Worker Trips	4.17	6.62	164.90	0.28	1.26	0.59	1.85	0.46	0.47	0.93	28,294.88
Coating 04/08/2009-09/05/2028	16.16	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Fine Grading 01/01/2009-01/11/2028	1.87	14.87	7.78	0.00	1,438.79	0.61	1,439.40	300.48	0.56	301.04	2,124.40
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	1.87	14.86	7.48	0.00	0.00	0.61	0.61	0.00	0.56	0.56	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.12

2017	23.63	35.55	179.87	0.34	1,434.77	1.91	1,436.68	299.86	1.68	301.54	37,259.24
Asphalt 01/28/2008-05/11/2028	0.31	1.72	1.39	0.00	0.00	0.14	0.14	0.00	0.13	0.13	218.68
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.27	1.67	1.28	0.00	0.00	0.14	0.14	0.00	0.13	0.13	184.45
Paving On Road Diesel	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.05
Paving Worker Trips	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.19
Building 01/11/2009-08/22/2028	5.44	20.21	170.99	0.34	1.49	1.22	2.71	0.53	1.05	1.58	34,903.27
Building Off Road Diesel	0.29	1.77	1.62	0.00	0.00	0.10	0.10	0.00	0.09	0.09	293.71
Building Vendor Trips	1.36	12.43	17.47	0.06	0.23	0.53	0.76	0.08	0.48	0.56	6,422.31
Building Worker Trips	3.79	6.01	151.91	0.28	1.26	0.59	1.85	0.45	0.47	0.93	28,187.25
Coating 04/08/2009-09/05/2028	16.10	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.03
Architectural Coating	16.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.03
Fine Grading 01/01/2009-01/11/2028	1.77	13.62	7.37	0.00	1,433.28	0.55	1,433.83	299.33	0.51	299.83	2,116.26
Fine Grading Dust	0.00	0.00	0.00	0.00	1,433.28	0.00	1,433.28	299.33	0.00	299.33	0.00
Fine Grading Off Road Diesel	1.77	13.60	7.10	0.00	0.00	0.55	0.55	0.00	0.51	0.51	2,065.34
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.92

2018	23.12	32.46	167.88	0.34	1,440.29	1.79	1,442.08	301.01	1.57	302.59	37,403.59
Asphalt 01/28/2008-05/11/2028	0.30	1.61	1.38	0.00	0.00	0.13	0.13	0.00	0.12	0.12	219.52
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.26	1.57	1.28	0.00	0.00	0.13	0.13	0.00	0.12	0.12	185.16
Paving On Road Diesel	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.26
Building 01/11/2009-08/22/2028	4.98	18.30	159.28	0.34	1.49	1.17	2.66	0.53	1.00	1.53	35,038.56
Building Off Road Diesel	0.27	1.63	1.60	0.00	0.00	0.09	0.09	0.00	0.08	0.08	294.84
Building Vendor Trips	1.27	11.17	16.46	0.06	0.23	0.49	0.72	0.08	0.44	0.52	6,447.75
Building Worker Trips	3.45	5.51	141.22	0.28	1.26	0.59	1.85	0.46	0.47	0.93	28,295.97
Coating 04/08/2009-09/05/2028	16.16	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Fine Grading 01/01/2009-01/11/2028	1.67	12.54	7.11	0.00	1,438.79	0.50	1,439.29	300.48	0.46	300.94	2,124.40
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	1.66	12.53	6.85	0.00	0.00	0.50	0.50	0.00	0.46	0.46	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.12

2019	22.60	29.60	156.40	0.34	1,440.29	1.67	1,441.96	301.01	1.47	302.48	37,404.04
Asphalt 01/28/2008-05/11/2028	0.28	1.51	1.37	0.00	0.00	0.12	0.12	0.00	0.11	0.11	219.52
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.24	1.47	1.27	0.00	0.00	0.11	0.11	0.00	0.11	0.11	185.16
Paving On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.26
Building 01/11/2009-08/22/2028	4.56	16.59	148.11	0.34	1.49	1.11	2.61	0.53	0.95	1.48	35,039.01
Building Off Road Diesel	0.25	1.49	1.58	0.00	0.00	0.07	0.07	0.00	0.07	0.07	294.84
Building Vendor Trips	1.18	10.07	15.49	0.06	0.23	0.45	0.68	0.08	0.41	0.48	6,448.44
Building Worker Trips	3.13	5.04	131.03	0.28	1.26	0.59	1.85	0.46	0.47	0.93	28,295.73
Coating 04/08/2009-09/05/2028	16.16	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Fine Grading 01/01/2009-01/11/2028	1.60	11.49	6.83	0.00	1,438.79	0.45	1,439.24	300.48	0.41	300.89	2,124.40
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	1.59	11.48	6.59	0.00	0.00	0.45	0.45	0.00	0.41	0.41	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.12

2020	22.21	27.16	146.33	0.35	1,445.81	1.58	1,447.39	302.17	1.38	303.55	37,547.83
Asphalt 01/28/2008-05/11/2028	0.26	1.41	1.36	0.00	0.00	0.11	0.11	0.00	0.10	0.10	220.36
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.22	1.38	1.26	0.00	0.00	0.11	0.11	0.00	0.10	0.10	185.86
Paving On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.17
Paving Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.33
Building 01/11/2009-08/22/2028	4.21	15.19	138.26	0.34	1.50	1.07	2.57	0.54	0.91	1.45	35,173.73
Building Off Road Diesel	0.22	1.38	1.58	0.00	0.00	0.07	0.07	0.00	0.06	0.06	295.97
Building Vendor Trips	1.11	9.13	14.66	0.06	0.23	0.41	0.65	0.08	0.37	0.45	6,473.78
Building Worker Trips	2.88	4.68	122.03	0.28	1.27	0.59	1.86	0.46	0.48	0.93	28,403.98
Coating 04/08/2009-09/05/2028	16.23	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.19
Architectural Coating	16.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.19
Fine Grading 01/01/2009-01/11/2028	1.51	10.55	6.62	0.00	1,444.30	0.40	1,444.71	301.63	0.37	302.00	2,132.54
Fine Grading Dust	0.00	0.00	0.00	0.00	1,444.30	0.00	1,444.30	301.63	0.00	301.63	0.00
Fine Grading Off Road Diesel	1.51	10.54	6.40	0.00	0.00	0.40	0.40	0.00	0.37	0.37	2,081.23
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.32

2021	20.81	22.53	107.87	0.34	1,440.29	1.47	1,441.76	301.01	1.28	302.29	37,413.05
Asphalt 01/28/2008-05/11/2028	0.26	1.40	1.33	0.00	0.00	0.11	0.11	0.00	0.10	0.10	219.52
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.22	1.37	1.26	0.00	0.00	0.11	0.11	0.00	0.10	0.10	185.16
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.26
Building 01/11/2009-08/22/2028	2.89	10.63	99.95	0.34	1.49	0.96	2.45	0.53	0.81	1.34	35,048.00
Building Off Road Diesel	0.22	1.37	1.57	0.00	0.00	0.06	0.06	0.00	0.06	0.06	294.84
Building Vendor Trips	0.84	6.10	11.36	0.06	0.23	0.30	0.54	0.08	0.27	0.35	6,451.70
Building Worker Trips	1.82	3.16	87.02	0.28	1.26	0.59	1.85	0.46	0.47	0.93	28,301.46
Coating 04/08/2009-09/05/2028	16.16	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Fine Grading 01/01/2009-01/11/2028	1.50	10.51	6.53	0.00	1,438.79	0.40	1,439.19	300.48	0.37	300.85	2,124.41
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	1.50	10.50	6.38	0.00	0.00	0.40	0.40	0.00	0.37	0.37	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.13

2022	20.73	22.45	107.46	0.34	1,434.77	1.46	1,436.23	299.86	1.27	301.13	37,269.71
Asphalt 01/28/2008-05/11/2028	0.26	1.39	1.32	0.00	0.00	0.11	0.11	0.00	0.10	0.10	218.68
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.22	1.37	1.26	0.00	0.00	0.11	0.11	0.00	0.10	0.10	184.45
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.05
Paving Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.19
Building 01/11/2009-08/22/2028	2.88	10.58	99.56	0.34	1.49	0.95	2.44	0.53	0.80	1.34	34,913.72
Building Off Road Diesel	0.22	1.36	1.56	0.00	0.00	0.06	0.06	0.00	0.06	0.06	293.71
Building Vendor Trips	0.84	6.07	11.31	0.06	0.23	0.30	0.53	0.08	0.27	0.35	6,426.98
Building Worker Trips	1.82	3.15	86.68	0.28	1.26	0.59	1.85	0.45	0.47	0.93	28,193.03
Coating 04/08/2009-09/05/2028	16.10	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.03
Architectural Coating	16.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.03
Fine Grading 01/01/2009-01/11/2028	1.50	10.47	6.51	0.00	1,433.28	0.40	1,433.68	299.33	0.37	299.69	2,116.27
Fine Grading Dust	0.00	0.00	0.00	0.00	1,433.28	0.00	1,433.28	299.33	0.00	299.33	0.00
Fine Grading Off Road Diesel	1.49	10.46	6.35	0.00	0.00	0.40	0.40	0.00	0.37	0.37	2,065.34
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.94

2023	20.73	22.45	107.46	0.34	1,434.77	1.46	1,436.23	299.86	1.27	301.13	37,269.71
Asphalt 01/28/2008-05/11/2028	0.26	1.39	1.32	0.00	0.00	0.11	0.11	0.00	0.10	0.10	218.68
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.22	1.37	1.26	0.00	0.00	0.11	0.11	0.00	0.10	0.10	184.45
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.05
Paving Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.19
Building 01/11/2009-08/22/2028	2.88	10.58	99.56	0.34	1.49	0.95	2.44	0.53	0.80	1.34	34,913.72
Building Off Road Diesel	0.22	1.36	1.56	0.00	0.00	0.06	0.06	0.00	0.06	0.06	293.71
Building Vendor Trips	0.84	6.07	11.31	0.06	0.23	0.30	0.53	0.08	0.27	0.35	6,426.98
Building Worker Trips	1.82	3.15	86.68	0.28	1.26	0.59	1.85	0.45	0.47	0.93	28,193.03
Coating 04/08/2009-09/05/2028	16.10	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.03
Architectural Coating	16.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.03
Fine Grading 01/01/2009-01/11/2028	1.50	10.47	6.51	0.00	1,433.28	0.40	1,433.68	299.33	0.37	299.69	2,116.27
Fine Grading Dust	0.00	0.00	0.00	0.00	1,433.28	0.00	1,433.28	299.33	0.00	299.33	0.00
Fine Grading Off Road Diesel	1.49	10.46	6.35	0.00	0.00	0.40	0.40	0.00	0.37	0.37	2,065.34
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.94

2024	20.89	22.62	108.28	0.35	1,445.81	1.47	1,447.28	302.17	1.28	303.45	37,556.40
Asphalt 01/28/2008-05/11/2028	0.26	1.40	1.33	0.00	0.00	0.11	0.11	0.00	0.10	0.10	220.37
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.22	1.38	1.26	0.00	0.00	0.11	0.11	0.00	0.10	0.10	185.86
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.17
Paving Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.33
Building 01/11/2009-08/22/2028	2.90	10.67	100.33	0.34	1.50	0.96	2.46	0.54	0.81	1.35	35,182.28
Building Off Road Diesel	0.22	1.38	1.58	0.00	0.00	0.07	0.07	0.00	0.06	0.06	295.97
Building Vendor Trips	0.85	6.12	11.40	0.06	0.23	0.31	0.54	0.08	0.27	0.35	6,476.42
Building Worker Trips	1.83	3.17	87.35	0.28	1.27	0.59	1.86	0.46	0.48	0.93	28,409.89
Coating 04/08/2009-09/05/2028	16.23	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.20
Architectural Coating	16.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.20
Fine Grading 01/01/2009-01/11/2028	1.51	10.55	6.56	0.00	1,444.30	0.40	1,444.71	301.63	0.37	302.00	2,132.55
Fine Grading Dust	0.00	0.00	0.00	0.00	1,444.30	0.00	1,444.30	301.63	0.00	301.63	0.00
Fine Grading Off Road Diesel	1.51	10.54	6.40	0.00	0.00	0.40	0.40	0.00	0.37	0.37	2,081.23
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.33

2025	20.81	22.53	107.87	0.34	1,440.29	1.47	1,441.76	301.01	1.28	302.29	37,413.05
Asphalt 01/28/2008-05/11/2028	0.26	1.40	1.33	0.00	0.00	0.11	0.11	0.00	0.10	0.10	219.52
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.22	1.37	1.26	0.00	0.00	0.11	0.11	0.00	0.10	0.10	185.16
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.26
Building 01/11/2009-08/22/2028	2.89	10.63	99.95	0.34	1.49	0.96	2.45	0.53	0.81	1.34	35,048.00
Building Off Road Diesel	0.22	1.37	1.57	0.00	0.00	0.06	0.06	0.00	0.06	0.06	294.84
Building Vendor Trips	0.84	6.10	11.36	0.06	0.23	0.30	0.54	0.08	0.27	0.35	6,451.70
Building Worker Trips	1.82	3.16	87.02	0.28	1.26	0.59	1.85	0.46	0.47	0.93	28,301.46
Coating 04/08/2009-09/05/2028	16.16	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Fine Grading 01/01/2009-01/11/2028	1.50	10.51	6.53	0.00	1,438.79	0.40	1,439.19	300.48	0.37	300.85	2,124.41
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	1.50	10.50	6.38	0.00	0.00	0.40	0.40	0.00	0.37	0.37	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.13

2026	20.17	20.71	89.55	0.34	1,440.29	1.50	1,441.79	301.01	1.30	302.31	37,408.25
Asphalt 01/28/2008-05/11/2028	0.26	1.39	1.31	0.00	0.00	0.11	0.11	0.00	0.10	0.10	219.52
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.22	1.37	1.26	0.00	0.00	0.11	0.11	0.00	0.10	0.10	185.16
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.26
Building 01/11/2009-08/22/2028	2.24	8.80	81.68	0.34	1.49	0.99	2.48	0.53	0.83	1.36	35,043.21
Building Off Road Diesel	0.22	1.37	1.57	0.00	0.00	0.06	0.06	0.00	0.06	0.06	294.84
Building Vendor Trips	0.73	5.03	9.82	0.06	0.23	0.27	0.50	0.08	0.24	0.32	6,452.17
Building Worker Trips	1.29	2.40	70.30	0.28	1.26	0.65	1.92	0.46	0.53	0.99	28,296.20
Coating 04/08/2009-09/05/2028	16.16	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Fine Grading 01/01/2009-01/11/2028	1.50	10.51	6.50	0.00	1,438.79	0.40	1,439.19	300.48	0.37	300.85	2,124.40
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	1.50	10.50	6.38	0.00	0.00	0.40	0.40	0.00	0.37	0.37	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.12

2027	20.17	20.71	89.55	0.34	1,440.29	1.50	1,441.79	301.01	1.30	302.31	37,408.25
Asphalt 01/28/2008-05/11/2028	0.26	1.39	1.31	0.00	0.00	0.11	0.11	0.00	0.10	0.10	219.52
Paving Off-Gas	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.22	1.37	1.26	0.00	0.00	0.11	0.11	0.00	0.10	0.10	185.16
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.11
Paving Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.26
Building 01/11/2009-08/22/2028	2.24	8.80	81.68	0.34	1.49	0.99	2.48	0.53	0.83	1.36	35,043.21
Building Off Road Diesel	0.22	1.37	1.57	0.00	0.00	0.06	0.06	0.00	0.06	0.06	294.84
Building Vendor Trips	0.73	5.03	9.82	0.06	0.23	0.27	0.50	0.08	0.24	0.32	6,452.17
Building Worker Trips	1.29	2.40	70.30	0.28	1.26	0.65	1.92	0.46	0.53	0.99	28,296.20
Coating 04/08/2009-09/05/2028	16.16	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Architectural Coating	16.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.11
Fine Grading 01/01/2009-01/11/2028	1.50	10.51	6.50	0.00	1,438.79	0.40	1,439.19	300.48	0.37	300.85	2,124.40
Fine Grading Dust	0.00	0.00	0.00	0.00	1,438.79	0.00	1,438.79	300.48	0.00	300.48	0.00
Fine Grading Off Road Diesel	1.50	10.50	6.38	0.00	0.00	0.40	0.40	0.00	0.37	0.37	2,073.28
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.12

2028	12.53	6.42	52.95	0.22	39.55	0.68	40.23	8.40	0.58	8.98	22,572.64
Asphalt 01/28/2008-05/11/2028	0.09	0.50	0.47	0.00	0.00	0.04	0.04	0.00	0.04	0.04	79.06
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.08	0.50	0.45	0.00	0.00	0.04	0.04	0.00	0.04	0.04	66.68
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.58
Building 01/11/2009-08/22/2028	1.43	5.63	52.27	0.22	0.96	0.63	1.59	0.34	0.53	0.87	22,422.28
Building Off Road Diesel	0.14	0.88	1.00	0.00	0.00	0.04	0.04	0.00	0.04	0.04	188.65
Building Vendor Trips	0.46	3.22	6.28	0.04	0.15	0.17	0.32	0.05	0.15	0.20	4,128.40
Building Worker Trips	0.83	1.53	44.98	0.18	0.81	0.42	1.23	0.29	0.34	0.63	18,105.23
Coating 04/08/2009-09/05/2028	10.96	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.32
Architectural Coating	10.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.32
Fine Grading 01/01/2009-01/11/2028	0.04	0.28	0.17	0.00	38.59	0.01	38.60	8.06	0.01	8.07	56.98
Fine Grading Dust	0.00	0.00	0.00	0.00	38.59	0.00	38.59	8.06	0.00	8.06	0.00
Fine Grading Off Road Diesel	0.04	0.28	0.17	0.00	0.00	0.01	0.01	0.00	0.01	0.01	55.61
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37

Phase Assumptions

Phase: Fine Grading 1/1/2009 - 1/11/2028 - Default Fine Site Grading Description

Total Acres Disturbed: 2205.06

Maximum Daily Acreage Disturbed: 551.26

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

8/6/2009 8:46:00 AM

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

3 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/28/2008 - 5/11/2028 - Default Paving Description

Acres to be Paved: 551.26

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 1/11/2009 - 8/22/2028 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 4/8/2009 - 9/5/2028 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

8/6/2009 8:46:00 AM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	2.65	35.76	25.18	0.00	0.07	0.06	43,806.71
Hearth	16.49	2.94	149.62	0.49	24.41	23.49	4,163.46
Landscape	2.60	0.17	15.02	0.00	0.04	0.04	24.35
Consumer Products	36.52						
Architectural Coatings	31.28						
TOTALS (tons/year, unmitigated)	89.54	38.87	189.82	0.49	24.52	23.59	47,994.52

Area Source Changes to Defaults

8/6/2009 8:46:01 AM

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	57.03	67.71	672.43	0.51	86.16	16.68	50,717.86
Apartments low rise	4.24	4.80	47.70	0.04	6.11	1.18	3,597.72
Condo/townhouse general	8.29	9.39	93.22	0.07	11.94	2.31	7,031.42
Mobile home park	1.34	1.48	14.70	0.01	1.88	0.36	1,108.84
Place of worship	6.35	7.44	70.94	0.06	9.43	1.82	5,497.25
City park	0.25	0.17	1.61	0.00	0.21	0.04	124.60
School/Daycare	20.19	25.07	238.66	0.19	31.73	6.13	18,499.34
Commercial	258.34	344.42	3,279.32	2.54	436.01	84.28	254,192.50
Industrial	124.14	129.03	1,228.53	0.95	163.34	31.58	95,227.77
TOTALS (tons/year, unmitigated)	480.17	589.51	5,647.11	4.37	746.81	144.38	435,997.30

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	1,429.00	9.57	dwelling units	3,344.00	32,002.08	273,608.18
Apartments low rise	40.40	6.90	dwelling units	329.00	2,270.10	19,408.67

8/6/2009 8:46:01 AM

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	91.90	6.90	dwelling units	643.00	4,436.70	37,932.46
Mobile home park	62.70	5.98	dwelling units	117.00	699.66	5,981.88
Place of worship		9.11	1000 sq ft	444.00	4,044.84	29,952.04
City park		1.59	acres	57.10	90.79	678.65
School/Daycare		14.49	1000 sq ft	944.00	13,678.56	100,810.99
Commercial		45.04	1000 sq ft	4,173.00	187,951.92	1,385,205.71
Industrial		4.96	1000 sq ft	14,196.00	70,412.16	518,937.64
					315,586.81	2,372,516.22

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.7	1.3	98.3	0.4
Light Truck < 3750 lbs	10.0	3.0	90.0	7.0
Light Truck 3751-5750 lbs	22.5	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.1	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	6.2	18.8	75.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	65.7	34.3	0.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Place of worship				3.0	1.5	95.5
City park				5.0	2.5	92.5
School/Daycare				2.0	1.0	97.0
Commercial				2.0	1.0	97.0
Industrial				2.0	1.0	97.0

APPENDIX C BIOLOGY SPECIES ACCOUNTS

Species Accounts

Plants

Brittlescale (*Atriplex depressa*) is designated as List 1B by CNPS. This annual herb in the Chenopodiaceae family is found in chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, and in vernal pools on alkaline, clay soils between 1 and 320 meters above mean sea level (MSL). This plant blooms from May to October. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

San Joaquin spearscale (*Atriplex joaquiniana*) is designated as List 1B by CNPS. This annual herb in the Chenopodiaceae family is found in chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, and in vernal pools on alkaline soils between 1 and 835 meters above MSL. This plant blooms from April to October. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

Fox sedge (*Carex vulpinoidea*) is designated as List 2 by CNPS. This perennial herb in the Cyperaceae family is found in marshes and swamps and riparian woodlands between 30 and 1,200 meters above MSL. This plant blooms from May to June. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

Round-leaved filaree (*California macrophylla*) is designated as List 1B by CNPS. This annual herb in the Cyperaceae family is found in cismontane woodland and valley and foothill grasslands on clay soils between 15 and 1,200 meters above MSL. This plant blooms from March to May. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

Stony Creek spurge (*Chamaesyce ocetella* ssp. *rattanii*) is designated as List 1B by CNPS. This annual herb in the Euphorbiaceae family is found in chaparral and valley and foothill grasslands on sandy/rocky soils between 85 and 800 meters above MSL. This plant blooms from May to October. Suitable habitat is present within the study area. There is one previously recorded occurrence within one mile of the study area.

Recurved larkspur (*Delphinium recurvatum*) is designated as List 1B by CNPS. This perennial herb in the Ranunculaceae family is found in chenopod scrub, cismontane woodland, valley and foothill grassland in alkaline soils between 3 and 750 meters above MSL. This plant blooms from March to June. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

Dwarf downingia (*Downingia pusilla*) is designated as List 2 by CNPS. This annual herb in the Campanulaceae family is found in and valley and foothill grasslands in mesic areas and in vernal pools between 1 and 445 meters above MSL. This plant blooms from March to May. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

Adobe lily (*Fritillaria pluriflora*) is designated as List 1B by CNPS. This bulbiferous herb in the Liliaceae family is found in chaparral, cismontane woodland, valley and foothill grasslands, often on adobe soils, and in mesic areas and vernal pools between 60 and

705 meters above MSL. This plant blooms from February to April. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*) is designated as List 1B by CNPS. This annual herb in the Juncaceae family is found in vernally mesic sites within chaparral, valley and foothill grassland, cismontane woodlands, and sometimes on edges of vernal pools between 30 and 100 meters above MSL. This plant blooms from March to May. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*) is designated as List 1B by CNPS. This annual herb in the Polemoniaceae family is found in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland and vernal pools between 5 and 1,740 meters above MSL. This plant blooms from April to July. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

Ahart's paronychia (*Paronychia ahartii*) is designated as List 1B by CNPS. This annual herb in the Caryophyllaceae family is found on the stony, nearly barren clay of swales and on higher ground around vernal pools within valley and foothill grassland and cismontane woodlands between 30 and 510 meters above MSL. This plant blooms from May to June. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

Caper-fruited tropidocarpum (*Tropidocarpum capparideum*) is designated as List 1B by CNPS. This annual herb in the Brassicaceae family is found in valley and foothill grasslands on alkaline hills between 1 and 455 meters above MSL. This plant blooms from March to April. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

Brazilian watermeal (*Wolffia brasiliensis*) is designated as List 2 by CNPS. This Perennial herb/aquatic plant in the Lemnaceae family is found in marshes and swamps (assorted shallow freshwater habitats) between 30 and 100 meters above MSL. This plant blooms from April to December. Suitable habitat is present within the study area. There are no previously recorded occurrences within the study area or immediate vicinity.

Animals

Invertebrates

Conservancy fairy shrimp (*Branchinecta conservatio*) is federally listed as endangered with designated critical habitat. This species occurs within large, cool-water vernal pools with moderately turbid water; however, little ecological information is available for this species. This species is only known to occur within the northern two-thirds of the Central Valley, and within this limited range, its populations are even more restricted, occupying only a few disjunct localities within the following counties: Tehama, Glenn, Solano, Stanislaus, and Merced. The study area may contain suitable habitat; however, there are no recorded occurrences within one mile of the study area.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is federally listed as threatened with designated critical habitat. This species is commonly found near

riparian habitats in the Central Valley; however, its range spans the Sierra foothills, and may reach elevations of 3,000 feet above MSL. This species is dependent on elderberry (*Sambucus* sp.) shrubs for the larval stage of its life cycle. For this reason, elderberry shrubs are considered habitat for this species. The study area may contain suitable habitat; however, there are no recorded occurrences within one mile of the study area.

Vernal pool fairy shrimp (*Branchinecta lynchi*) is federally listed as threatened with designated critical habitat. This species is found primarily in the Central Valley and southern California, in vernal pools that remain flooded for at least six to eight weeks during the rainy season (late November to early May). Fairy shrimp feed on algae, bacteria, protozoa, rotifers and bits of detritus. Highly sensitive to thermal stress, the vernal pool fairy shrimp die at the first sign of summer-like conditions (>20° C), leaving behind eggs (cysts) that are capable of withstanding heat, cold and prolonged desiccation. The cysts remain in the dried vernal pools and may hatch when the pools refill with water. The study area may contain suitable habitat; however, there are no recorded occurrences within one mile of the study area.

Vernal pool tadpole shrimp (*Lepidurus packardi*) is federally listed as endangered with designated critical habitat. This species is found primarily in the Sacramento Valley and northern San Joaquin Valley, in vernal pools that remain flooded for at least six to eight weeks during the rainy season (late November to early May) and do not experience wide daily temperature fluctuations. A highly predatory species, tadpole shrimp feed on fairy shrimp, small crustaceans, aquatic insects, and even small fishes, if available. The species is more temperature tolerant than vernal pool fairy shrimp, and may be found as late as June if ponded conditions persist. However, the tadpole shrimp is slower growing and usually is found in the deeper vernal pools (>3 feet deep at the center). The study area may contain suitable habitat; however, there are no recorded occurrences within one mile of the study area.

Birds

Bald eagle (*Haliaeetus leucocephalus*) has been delisted federally; however, it is federally protected under the Golden and Bald Eagle Protection Act, is state-listed as endangered, and is also federally protected as a migratory non-game bird of management concern under the MBTA. This species breeds and roosts in remote coniferous forests in close proximity to a river, stream, lake, reservoir, marsh, or other large wetland areas. The bald eagle inhabits ocean shores, lake margins, and rivers for both nesting and wintering. It builds stick nests within large tall trees and typically within one mile of permanent water. The study area contains suitable foraging habitat; however, there are no recorded occurrences within the study area.

Bank swallow (*Riparia riparia*) is state listed as threatened and is also federally protected as a migratory non-game bird of management concern under the MBTA. This migrant species is found seasonally in the fall and spring in interior California. The bank swallow is restricted to riparian and other lowland habitats with vertical cliffs and banks with fine-textured or sandy soils into which it digs nesting holes. This species is a colonial nester, and colonies may contain thousands of individual birds. The study area contains suitable nesting and foraging habitat; however, there are no recorded occurrences within the study area.

Cooper's hawk (*Accipiter cooperii*) is a California species of special concern and is also federally protected as a migratory non-game bird of management concern under the

MBTA. Cooper's hawk is a yearlong resident throughout most of the wooded portions of the state. This species typically resides in dense stands of oak woodland habitat, riparian, or forest habitats near water. This species elevation range spans habitats from sea level to above 8860 feet. The Cooper's hawk breeding period is March through August and nests are typically found in the crotches of deciduous trees and conifers. The study area contains suitable foraging and nesting habitat; however, there are no recorded occurrences within the study area.

Ferruginous hawk (*Buteo regalis*) is a California species of special concern and is also federally protected as a migratory non-game bird of management concern under the MBTA. Ferruginous hawk is a winter resident and migrant of California; arriving in September and returning to their breeding grounds, which extend from Oregon into southern Canada, by mid-April. Rabbits and hares (lagomorphs), California ground squirrel and deer mice are the primary prey consumed by ferruginous hawks. The study area contains suitable wintering habitat; however, there are no recorded occurrences within the study area.

Golden eagle (*Aquila chrysaetos*) is a California fully protected species and is also federally protected as a migratory non-game bird of management concern under the MBTA. Golden eagles are found throughout California in a variety of habitats including grasslands, open scrublands, savannahs, desert, sage-juniper flats, rolling foothills and early successional stages of forest and shrub habitats. This species typically nests on cliff faces, in large trees, or on tall artificial structures (such as power transmission towers) which are surrounded by open areas for hunting. Golden eagles typically feed on small mammals, birds, and reptiles. The study area contains suitable foraging and nesting habitat; however, there are no recorded occurrences within the study area.

Little willow flycatcher (*Empidonax traillii brewsteri*) is state listed as endangered and is also federally protected as a migratory non-game bird of management concern under the MBTA. The willow flycatcher is similar in appearance to many of the empidonax flycatcher complex. Willow flycatchers overwinter in Mexico and Central America. This subspecies breeds thoughout the western slope of the Sierras and Cascades. They typically return to their breeding grounds in May and June. Breeding habitat for this species includes montane riparian and willow scrub habitat. This species is known to breed in the foothills and Sierra Nevada range from approximately 2,000 to 8,000 feet. Nests are typically built in the fork of willow shrubs or other suitable riparian or wet meadow vegetation. Flycatchers forage primarily on insects but will also eat some seeds and berries. The study area contains suitable migration habitat; however, there are no recorded occurrences within the study area.

Loggerhead shrike (*Lanius ludovicianus*) is a California species of special concern and is also federally protected as a migratory non-game bird of management concern under the MBTA. This bird inhabits open habitats with scattered shrubs and trees, posts, fences and utility lines, occurring often in open cropland. This species nests from March into May, building twig nests within dense foliage of shrubs or trees that conceal the nest. There are no CNDDB records of this species within the vicinity of the study area; however, this species is more widespread in California than CNDDB records indicate. The study area contains suitable habitat; however, there are no recorded occurrences within the study area.

Long-billed curlew (*Numenius americanus*) is a California species of special concern and is also federally protected as a migratory non-game bird of management concern under

the MBTA. Their breeding habitat consists of grasslands in west-central North America. Nests are located on the ground in open prairie. These birds forage in fields, picking up food by sight, and also by probing. They mainly eat insects, but also eat crustaceans in coastal areas. The study area contains suitable wintering/migration habitat; however, there are no recorded occurrences within the study area.

Northern harrier (*Circus cyaneus*) is a California species of special concern and is also federally protected as a migratory non-game bird of management concern under the MBTA. The northern harrier is a large gray or brown raptor species. The female is typically larger than the male. This species typically inhabits marshes, oak savannahs, wetlands, or grasslands. Northern harriers are usually year-round residents in California. Some individuals from other areas will overwinter in California. Nests are typically built on the ground or in low shrubs. Northern harriers typically feed on small mammals, reptiles, and insects. The study area contains suitable foraging and nesting habitat; however, there are no recorded occurrences within the study area.

Oak titmouse (*Baeolophus inornatus*) is a species of local concern. This bird, formally the plain titmouse, is a year-round resident in northern California of a variety of habitats. It is most often associated with oaks, but also occurs in montane hardwood, blue, coastal and valley oak woodlands, and mixed conifer habitats. It occurs in cismontane California from Humboldt County south to the Mexican border. It nests in tree cavities or old woodpecker holes, natural cavities or nest boxes. Breeding typically occurs between March and July. The study area contains suitable foraging and nesting habitat; however, there are no recorded occurrences within the study area.

Swainson's hawk (*Buteo swainsoni*) is state listed as threatened and is also federally protected as a migratory non-game bird of management concern under the MBTA. Swainson's hawk is a long-distance migrant with nesting grounds in western North America. The Swainson's hawk population that nests in the Central Valley winters primarily in Mexico, while the population that nests in the interior portions of North America winters in South America. Swainson's hawks arrive in the Central Valley between March and early April to establish breeding territories. They leave their breeding grounds to return to their wintering grounds in late August or early September. Breeding generally occurs from late March to late August, peaking in late May through July. In the Central Valley, Swainson's hawks nest in isolated trees, small groves or large woodlands next to open grasslands or agricultural fields. This species typically nests near riparian areas; however, it has been known to nest in urban areas as well. Nest locations are usually in close proximity to suitable foraging habitats, which include fallow fields, irrigated pastures, alfalfa and other hay crops and low-growing row crops. The study area contains suitable foraging and nesting habitat; however, there are no recorded occurrences within the study area.

Tricolored blackbird (*Agelaius tricolor*) is a California species of special concern and is also federally protected as a migratory non-game bird of management concern under the MBTA. This species is endemic to California and southern Oregon and is a year-round resident of California. The tri-colored blackbird nests colonially in stands of cattails, tules, blackberries or other dense herbaceous vegetation. The study area contains suitable foraging and nesting habitat. There is one recorded occurrence within one mile of the study area.

Western burrowing owl (*Athene cunicularia hypugea*) is a California species of special concern and is also federally protected as a migratory non-game bird of management

concern under the MBTA. The western burrowing owl is a small ground-dwelling owl that occurs in western North America from Canada to Mexico and east to Texas and Louisiana. Although in certain areas of its range western burrowing owls are migratory, owls in California are predominantly non-migratory. The western burrowing owl is an opportunistic forager; feeding on large arthropods (predominately beetles and grasshoppers), small mammals, reptiles, birds and carrion. The breeding season for western burrowing owls occurs from February to August, peaking in April and May. Western burrowing owls nest in burrows, often made by ground squirrels and other small mammals. They are also known to use artificial burrows such as pipes, culverts and nest boxes. The study area contains suitable foraging and nesting habitat; however, there are no recorded occurrences within the study area.

White-tailed kite (*Elanus leucurus*) is a California fully protected species and is also federally protected as a migratory non-game bird of management concern under the MBTA. This species nests in rolling foothills and valley margins with scattered oaks, riparian woodlands, or marshes next to deciduous woodland, and forages in open grasslands, meadows, or marshes. White-tailed kites are known to forage for small rodents and insects in agricultural areas, especially alfalfa fields, open grasslands, meadows and marshes close to isolated, dense-topped trees used for nesting and perching. Nests are generally built in available trees near hunting grounds. The study area contains suitable foraging and nesting habitat; however, there are no recorded occurrences within the study area.

Reptiles and Amphibians

California red-legged frog (*Rana aurora draytonii*) is federally-listed as threatened, is a California Species of Special Concern, and is fully protected under the California Fish and Game Code Section 5050. Habitat for the California red-legged frog consists of aquatic breeding sites within a matrix of riparian and upland dispersal habitat. Breeding habitat for the species includes pools and backwaters within streams, creeks, ponds, marshes, springs, lagoons, and artificially impounded stock ponds (USFWS 2002). California red-legged frogs are known to aestivate in upland habitat in rodent burrows, under rocks and logs, and in leaf litter in areas adjacent to aquatic habitat. California red-legged frogs are seldom found far from aquatic habitat during dry periods, but some individuals may disperse through upland habitats after the first fall rains. This species requires a permanent water source and is typically found along slow-moving streams, ponds, or marsh communities with emergent vegetation.

The U.S. Fish and Wildlife Service (USFWS) has identified primary constituent elements for California red-legged frog as physical and biological elements that are essential to the conservation of the species. These elements include aquatic breeding habitat, non-breeding aquatic habitat, upland habitat, and dispersal habitat. Adults of this species can survive in moist upland habitat after aquatic habitats have dried and can live several years to make new breeding attempts. Therefore, aquatic breeding habitat need not be present every year, but it must hold water often enough to support a California red-legged frog population (USFWS 2006). Aquatic habitat is essential for providing space, food, and cover requirements necessary to sustain all life stages of this species. Non-breeding aquatic habitat includes all aquatic breeding habitat types identified above as well as intermittent creeks, seeps, and springs. California red-legged frog can use cracks in the bottom of dried ponds as refugia to maintain moisture and avoid heat exposure (USFWS 2006). The associated upland and riparian habitat provide food and shelter sites for this species and assist in maintaining the integrity of aquatic sites

by protecting them from disturbance and supporting the normal functions of aquatic habitat. Upland habitat is described as natural areas within 200 feet of the edge of riparian vegetation or no further than the watershed boundary. California red-legged frogs often disperse from their breeding habitat in search of upland habitat if aquatic habitat is not available. Dispersal habitat provides connectivity between California red-legged frog breeding habitat. Dispersal habitat can be of several habitat types, but must be free of barriers that would prevent frog dispersal. Barriers include heavily traveled roads without bridges or culverts and large urban developments with vast areas of pavement. During periods of wet weather, some individuals may make overland excursions through upland habitats; during dry periods, this species is rarely encountered far from water (USFWS 2002).

The study area may contain suitable habitat; however, there are no recorded occurrences within one mile of the study area.

Foothill yellow-legged frog (*Rana boylii*) is a California species of special concern. This species occurs from northern Oregon west of the Cascades south along the coast to the San Gabriel mountains, and south along the western side of the Sierra Nevada mountains to Kern County, with an isolated population in the San Pedro Martir mountains of Baja California. It is found in partly shaded shallow streams and riffles with a rocky substrate in a variety of habitats. This species frequents shallow, slow, gravelly streams and rivers with sunny banks, in forests, chaparral, woodlands from sea level to 2,040 meters. The study area may contain suitable habitat; however, there are no recorded occurrences within one mile of the study area.

Giant garter snake (*Thamnophis gigas*) is a federal and state listed threatened species. The giant garter snake is one of the largest garter snakes, reaching an overall length of at least 63 inches. This species is found in several types of habitats including agricultural wetlands, irrigation and drainage canals, sloughs, pools, small lakes, low gradient streams, and adjacent wetlands. Giant garter snakes have a range restricted to the Central Valley spanning from Sacramento County northward to southern Butte County, although there have been a few recent sightings in San Joaquin County and Chico. This species possesses a brownish to olive dorsal coloration with a checkered pattern of black spots separated by a yellow dorsal stripe and two light lateral stripes. Suitable habitat for giant garter snakes is characterized by adequate water during the snake's active season (early spring through the middle of fall) for food and cover, emergent, herbaceous vegetation for escape cover and foraging habitat, grassy banks for basking, and higher elevation uplands for cover and refuge from floods during the snake's dormant season (winter). Habitat fragmentation, alteration, and loss are the primary causes of this species decline, but invasive predators, parasites, and water pollution also contribute to this trend. The study area may contain suitable habitat; however, there are no recorded occurrences within one mile of the study area.

Northwestern pond turtle (*Emys* (=*Clemmys*) *marmorata marmorata*) is a California species of special concern. The western pond turtle includes two subspecies, the northwestern pond turtle and the southwestern pond turtle (*Emys* (=*Clemmys*) *marmorata pallida*). The range of these two subspecies is interconnected within and around the San Francisco Bay Area. The western pond turtle is a thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. This turtle needs basking sites and suitable (sandy banks or grassy open fields) upland habitat for egg-laying. The study area may contain suitable habitat; however, there are no recorded occurrences within one mile of the study area.

Western spadefoot toad (*Spea hammondii*) is a California species of special concern. The geographic range of the western spadefoot toad includes the Central Valley and on the coast from Point Conception south to the Mexican border. This species has been observed from sea level up to 4,500 feet above MSL, in the southern foothills of the Sierra Nevada Mountains. The western spadefoot toad is most commonly found in grassland habitats with temporary pools of water, but they have also been found in open chaparral and valley-foothill pine-oak woodlands. This species spends most of the year underground, where members seek refuge from desiccating weather by constructing and residing in small burrows. These toads often breed in temporary pools and quiet streams between the months of January and May. The study area may contain suitable habitat; however, there are no recorded occurrences within one mile of the study area.

Mammals

American badger (*Taxidea taxus*) is a California species of special concern. The geographic distribution of the American badger is from Alberto southward to central Mexico and eastward from the Pacific coast to Ohio. This species ranges throughout the state of California, but are absent from humid coastal forests of Del Norte county and Humboldt county. Suitable habitat for badgers is characterized by grasslands, shrub, mountain meadow, and open stages of most habitats with dry soil. Badgers dig burrows in soil for cover, or reuse old burrows. They prey mostly on fossorial rodents such as gophers, ground squirrels, marmots, and kangaroo rats. They will also eat a variety of other animals including mice, woodrats, birds and insects. The study area contains suitable habitat; however, there are no recorded occurrences within the study area.

Greater western mastiff bat (*Eumops perotis californicus*) is a California species of special concern. The greater western mastiff bat is a subspecies of the western mastiff bat and is the largest bat in the United States. Its range extends from San Francisco Bay, California west to Big Bend Texas and south into Mexico. They are more commonly found below 4,000 feet elevation in areas with rock and cliff cervices, or buildings to roost. The foraging range of this species can extend several miles from its roosting site. The study area contains suitable habitat; however, there are no recorded occurrences within the study area.

Ringtail cat (*Bassariscus astutus*) is a California fully protected species. The ringtail is a widely distributed, common to uncommon permanent resident. This species occurs in various riparian habitats, and in brush stands of most forest and shrub habitats, at low to middle elevations. Breeding habitat consists of rock recesses, hollow trees, logs, snags, abandoned burrows, or woodrat nests. The study area contains suitable habitat; however, there are no recorded occurrences within the study area.

Pallid bat (*Antrozous pallidus)* is a California species of special concern. This bat is a locally common species of low elevations in California and is a yearlong resident in most of the range. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern counties, and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County. A wide variety of habitats is occupied, including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. The pallid bat is most common in open, dry habitats with rocky areas for roosting. The study area contains suitable habitat; however, there are no recorded occurrences within the study area.

Townsend's big-eared bat (*Corynorhinus townsendii*) is a California species of special concern. The Pacific western big-eared bat occurs throughout California within mesic habitats, however the details of their distribution are not well known. This species primarily feeds on small moths but also may feed on beetles and other soft bodied insects, capturing prey in flight using echolocation. The pacific western big-eared bat requires caves, mines, tunnels, buildings, or other human-made structures for roosting. The study area contains suitable habitat; however, there are no recorded occurrences within the study area.

Western red bat (*Lasiurus blossevillii*) is a California species of special concern. The western red bat is locally common in some areas of California, and occurd from Shasta County south to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts. The winter range includes western lowlands and coastal regions south of San Francisco Bay. This species migrates between summer and winter ranges, and migrants may be found outside the normal range. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. The western red bat feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. The study area contains suitable habitat; however, there are no recorded occurrences within the study area.

*** All references for the above species descriptions are listed at the end of Section 4.4 Biological Resources.**

TABLE C-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

Common Name (Scientific Name)	Status FED/ST/ CNPS	General Habitat Description	Potential Habitat within Study Area?
Plants			
Atriplex depressa Brittlescale	~/~/1B	Annual herb found in chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, vernal pools on alkaline and clay soils. Blooming period: May – October Elevation: 1 – 320 m	Yes
Atriplex joaquiniana San Joaquin spearscale	~/~/1B	Annual herb found in chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, vernal pools on alkaline soils. Blooming period: April – October Elevation: 1-835 m	Yes
Carex vulpinoidea Fox sedge	~/~/2	Perennial herb found in wet places including marshes, swamps, and riparian woodlands. Blooming period: May – June Elevation: 30 - 1,200 m	Yes
Castilleja rubicundula ssp. *rubicundula* Pink creamsacs	~/~/1B	Annual herb found in chaparral (openings), cismontane woodlands, meadows and seeps, and valley and foothill grasslands on serpentine soils. Blooming period: April – June Elevation: 20 - 900 m	No, serpentine soils not mapped in vicinity.
California macrophylla Round-leaved filaree	~/~/1B	Annual herb found in cismontane woodlands and valley and foothill grasslands on clay soils. Blooming period: March – May Elevation: 15 – 1,200 m	Yes
Chamaesyce ocetella ssp. *rattanii* Stony Creek spurge	~/~/1B	Annual herb found in chaparral and valley and foothill grasslands on sandy/rocky soils. Blooming period: May – October Elevation: 85 – 800 m	Yes, CNDDB occurrence within 1 mile of study area.
Delphinium recurvatum Recurved larkspur	~/~/1B	Perennial herb. Chenopod scrub, cismontane woodland, valley and foothill grassland in alkaline soils. Blooms: March – June Elevation: 3 - 750 m	Yes
Downingia pusilla Dwarf downingia	~/~/2	Annual herb found in valley and foothill grasslands/mesic areas and in vernal pools. Blooms: March – May Elevation: 1 - 445 m	Yes
Fritillaria pluriflora Adobe lily	~/~/1B	Bulbiferous herb found in chaparral, cismontane woodland, valley and foothill grasslands, often on adobe soils, and in mesic areas and vernal pools.	Yes

Common Name (Scientific Name)	Status FED/ST/ CNPS	General Habitat Description	Potential Habitat within Study Area?
		Blooms: February – April Elevation: 60 - 705 m	
Juncus leiospermus var. *leiospermus* Red Bluff dwarf rush	~/~/1B	Annual herb found on vernally mesic sites within chaparral, valley and foothill grassland, cismontane woodlands. Sometimes on edges of vernal pools. Blooming period: March – May Elevation: 30 - 100 m	Yes
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	~/~/1B	Annual herb found in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland and vernal pools. Blooming period: April – July Elevation: 5 - 1,740 m	Yes
Paronychia ahartii Ahart's paronychia	~/~/1B	Annual herb found on stony, nearly barren clay of swales and higher ground around vernal pools within valley and foothill grassland and cismontane woodland. Blooming period: May – June Elevation: 30 - 510 m	Yes
Tropidocarpum capparideum Caper-fruited tropidocarpum	~/~/1B	Annual herb found in valley and foothill grassland on alkaline hills. Blooming period: March – April Elevation: 1 - 455 m	Yes
Wolffia brasiliensis Brazilian watermeal	~/~/2	Perennial herb/aquatic found in marshes and swamps (assorted shallow freshwater habitats). Blooming period: April – December Elevation: 30 - 100 m	Yes
Invertebrates			
Conservancy fairy shrimp *Branchinecta conservatio*	FE/~ Critical Habitat	Inhabits rather large, cool-water vernal pools with moderately turbid water.	Yes
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT/~ Critical Habitat	Occurs in association with elderberry shrubs (*Sambucus* spp.).	Yes
Vernal pool fairy shrimp *Branchinecta lynchi*	FT/~ Critical Habitat	Occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, including one exceeding 25 acres, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre most commonly in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands.	Yes

Common Name (Scientific Name)	Status FED/ST/ CNPS	General Habitat Description	Potential Habitat within Study Area?
Vernal pool tadpole shrimp *Lepidurus packardi*	FE/~ Critical Habitat	Occurs in vernal pools and other seasonal freshwater habitats.	Yes
Fish			
Central Valley fall/late fall-run Chinook salmon *Oncorhynchus tshawytscha*	FC/CSC	Sacramento and San Joaquin Rivers and their tributaries.	Unknown
Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha*	FT/ST Critical Habitat	Sacramento and San Joaquin Rivers and their tributaries.	Unknown
Central Valley steelhead *Oncorhynchus mykiss*	FT/~ Critical Habitat	Restricted to the Sacramento River downstream of Keswick Dam; including the lower reaches of the Feather River, American River, and other large tributaries downstream. Also within tributaries of the Sacramento River and the Sacramento-San Joaquin Delta.	Unknown
Delta smelt *Hypomesus transpacificus*	FT/ST	Occurs in the estuarine waters of the San Joaquin and Sacramento Rivers as well as the San Francisco Bay. The majority of their one-year life span is spent within the freshwater edge of the mixing zone (saltwater-freshwater interface).	No
Green sturgeon *Acipenser medirostis*	FT/~	Occur in the Rogue River, Klamath River Basin, the Sacramento River, and their tributaries.	Unknown
Longfin smelt *Spirinchus thaleichthys*	~/~	Occur in Suisun Bay, Montezuma Slough, the lower reaches of the Sacramento and San Joaquin rivers and the Delta.	No
Sacramento splittail *Pogonichthys macrolepidotus*	~/~	Sacramento and San Joaquin Rivers and their tributaries.	Unknown
Winter-run Chinook salmon *Oncorhynchus tshawytscha*	FE/SE Critical Habitat	Rivers and stream tributaries to the Sacramento River Basin.	Unknown
Amphibians and Reptiles			
California (coast) horned lizard *Phrynosoma coronatum frontale*	~/CSC	Occurs in valley-foothill hardwood, conifer and clearings in riparian habitats, as well as in pine-cypress, juniper, and annual grassland habitats.	No, study area outside known geographic range.
California red-legged frog *Rana aurora draytonii*	FT/CSC Critical Habitat	Usually found in or near quiet permanent water of streams, marshes, or (less often) ponds and other quiet bodies of water; also damp woods and meadows some distance from water. Occurs in sites with dense vegetation (e.g., willows) close to	Yes

Common Name (Scientific Name)	Status FED/ST/ CNPS	General Habitat Description	Potential Habitat within Study Area?
		water and some shading; can occupy ephemeral pools if the water remains until late spring or early summer. Estivates in small mammal burrows, leaf litter, or other moist sites in or near (within a few hundred feet of) riparian areas. Disperses from water in wet weather. Seeks refuge in deep water. Breeds usually in permanent water; eggs are attached to emergent vegetation. Breeds late December to early April.	
California tiger salamander *Ambystoma californiense*	CT/CSC	Grassland habitats associated with long-lasting rain pools such as vernal pools or seasonal wetlands for breeding. Also needs ground refuges such as ground squirrel burrows.	No, study area outside known geographic range.
Foothill yellow-legged frog *Rana boylii*	~/CSC	Found in partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats including, valley-foothill hardwood, valley-foothill hardwood-conifer, valley foothill riparian, ponderosa pine, mixed conifer, mixed chaparral, and wet meadows.	Yes
Giant garter snake *Thamnophis gigas*	FT/CT	Freshwater marshes, sloughs, ponds, small lakes or low gradient streams with adjacent upland areas. Also has adapted to drainage canals, irrigation ditches, and agricultural wetlands especially flooded rice fields.	Yes
Northwestern pond turtle *Actinemys marmorata marmorata*	~/CSC	Occurs in permanent or nearly permanent water in a wide variety of habitat types.	Yes
Western spadefoot toad *Spea hammondii*	~/CSC	Occurs primarily in grassland habitats with associated seasonal wetlands for breeding.	Yes
Birds			
Bald eagle *Haliaeetus leucocephalus*	FD/CE & CFP MBTA	Permanent resident, and uncommon winter migrant, now restricted to breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity cos. Build stick nests within large tall trees and typically within 1 mile of permanent water. Breeds February to July.	Yes, foraging only.
Bank swallow *Riparia riparia*	~/CT MBTA	Nests within riparian areas with vertical cliffs, sides of man-made excavations near rivers and riverbanks with fine or sandy soils, up to 7,000 feet above MSL. Will also nest in areas void of vegetation.	Yes
Cooper's hawk *Accipiter cooperii*	~/~ MBTA	Breeding resident throughout most of the wooded portion of CA. Most often found in dense stands of live oak, riparian deciduous, or other forest habitats near water.	Yes
Ferruginous hawk *Buteo regalis*	~/CSC MBTA	Wintering habitat in open grasslands, sagebrush flats, desert scrub, low foothills surrounding	Yes, wintering only

Common Name (Scientific Name)	Status FED/ST/ CNPS	General Habitat Description	Potential Habitat within Study Area?
		valleys, and fringes of pinyon-juniper habitats.	
Golden eagle *Aquila chrysaetos*	~/CFP MBTA	Uncommon permanent resident and migrant throughout much of California. Typically found in rolling foothills, mountain areas, sage-juniper flats, and desert.	Yes
Little willow flycatcher *Empidonax traillii brewsteri*	~/SE MBTA	Seasonal (Neotropical) migrant; lower elevation central/coastal willow-dominated riparian habitats, with permanent water near moist meadows or spring-fed or boggy areas.	Yes, likely a fall migrant only.
Loggerhead shrike *Lanius ludovicianus*	~/CSC MBTA	Inhabits open areas with sparse shrubs, trees, and other perches.	Yes
Long-billed curlew *Numenius americanus*	~/CSC MBTA	Winter solitary or flocking migrant along California coast, and Central and Imperial Valleys; prefers large coastal estuaries, upland herbaceous areas, and croplands.	Yes
Northern harrier *Circus cyaneus*	~/CSC MBTA	Occurs from annual grassland up to montane coniferous forest regions. Ground nester in shrubby vegetation, usually in moist areas such as a marsh or creek edge with emergent wetland vegetation.	Yes
Northern spotted owl *Strix occidentalis*	FT/ CSC MBTA	In northern California, resides in dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 2,300 m (0-7,600 ft).	No
Oak titmouse *Baeolophus inornatus*	~/SLC	Occurs in low to mid-elevation habitats, closely tied to warm, dry oak or oak-pine woodland habitats.	Yes
Swainson's hawk *Buteo swainsoni*	~/ST MBTA	Nests in isolated trees or riparian woodlands adjacent to suitable foraging habitat (agricultural fields, grasslands, etc.).	Yes
Tricolored blackbird *Agelaius tricolor*	~/CSC MBTA	Nests in dense blackberry, cattails, tules, willows, or wild rose within emergent wetlands throughout the Central Valley and the foothills surrounding the valley.	Yes, CNDDB occurrence within 1 mile of study area.
Western burrowing owl *Athene cunicularia hypugea*	~/CSC MBTA	Open grasslands and shrublands up to 5,300 ft with low perches and small mammal (i.e. squirrel) burrows. Resident year-round. Breeds March-August.	Yes
White-tailed kite *Elanus leucurus*	~/CFP MBTA	Resident; forages in open grasslands, meadows, or marshes; nest and perches in isolated, densely foliaged trees.	Yes
Yellow-billed cuckoo *Coccyzus americanus occidentalis*	FC/SE MBTA	Riparian forest, along the broad, lower flood-bottoms of large river systems. Nests in riparian jungles of willow often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	No
Mammals			

Common Name (Scientific Name)	Status FED/ST/ CNPS	General Habitat Description	Potential Habitat within Study Area?
American badger *Taxidea taxus*	~/CSC	Stout-bodied, primarily solitary species that hunts for ground squirrels and other small mammal prey in open grassland, cropland, deserts, savanna, and shrubland communities. Badgers have large home ranges and spend inactive periods in underground burrows. Badgers typically mate in mid- to late summer and give birth between March and April.	Yes
Greater western mastiff bat *Eumops perotis californicus*	~/CSC	Inhabits open areas in annual and perinnial grasslands, coniferous and deciduous woodlands, with potential roost locations having vertical faces to drop off from and take flight, such as crevices in rock outcrops and cliff faces, tunnels and tall buildings.	Yes
Pallid bat *Antrozous pallidus*	~/CSC	Pallid bats roost in rock crevices, tree hollows, mines, caves, and a variety of anthropogenic structures, including vacant and occupied buildings, mines, and natural caves are utilized as roosts. Occurrence is primarily in arid habitats. Colonies are usually small and may contain 12-100 bats.	Yes
Ringtail cat *Bassariscus astutus*	~/CFP	Found in riparian forests, chaparral, brush lands, oak woodlands, and rocky hillsides.	Yes
Townsend's big-eared bat *Corynorhinus townsendii*	~/CSC	Found in all but subalpine and alpine habitats, and may be found at any season throughout its range. Requires caves, mines, tunnels, buildings, or other human-made structures for roosting.	Yes
Western red bat *Lasiurus blossevillii*	~/CSC	Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands.	Yes

CODE DESIGNATIONS

Federal	State	CNPS	Other
FE = Listed as endangered under the Endangered Species Act	CE = Listed as endangered under the California Endangered Species Act	1B = Rare or Endangered in California and Elsewhere	SLC = Species of Local or Regional Concern or conservation significance
FT = Listed as threatened under the Endangered Species Act	CT = Listed as threatened under the California Endangered Species Act	1A = Plants presumed extinct in California	MBTA = Migratory Bird Treaty Act
FC = Candidate for listing (threatened or endangered) under Endangered Species Act	CSC = Species of Special Concern as identified by CDFG	List 2 = Rare, threatened, or endangered in California, but more common elsewhere	ESU = Evolutionary Significant Unit is a distinctive population
FD = De-listed in accordance with the	CFP = Listed as fully protected under CDFG	List 3 = Review List - More information needed about	

Federal	State	CNPS	Other
Endangered Species Act	code	this plant	
	CR = Rare as identified by CDFG		

[1] *References for plant descriptions include the following:*

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[2] *References for invertebrate descriptions include the following:*

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[3] *References for fish descriptions include the following:*

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[5] *References for bird descriptions include the following:*

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Appendix D Noise Acoustical Terminology

Acoustical Terminology

Acoustics The science of sound.

Ambient Noise The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.

Attenuation The reduction of an acoustic signal.

A-Weighting A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.

Decibel or dB Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.

CNEL Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.

Frequency The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.

Ldn Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.

Leq Equivalent or energy-averaged sound level.

Lmax The highest root-mean-square (RMS) sound level measured over a given period of time.

Loudness A subjective term for the sensation of the magnitude of sound.

Masking The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.

Noise Unwanted sound.

Peak Noise The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.

RT_{60} The time it takes reverberant sound to decay by 60 dB once the source has been removed.

Sabin The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.

SEL A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.

Threshold of Hearing The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.

Threshold of Pain Approximately 120 dB above the threshold of hearing.



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-113 City of Orland General Plan Update
Description: Existing Conditions
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Almond Way	6th Street to 8th Street	1,025	83		17	2	1	35	100	
2	Monterey Street	5th Street to 6th Street	1,425	83		17	2	1	35	100	
3	6th Street	Trinity Street to Shasta Street	6,369	83		17	2	1	35	100	
4	Tehama Street	5th Street to 6th Street	1,562	83		17	2	1	35	100	
5	Shasta Street	Melanie Circle to Woodward Avenue	658	83		17	2	1	35	100	
6	Newville Road	West of County Road HH	5,018	83		17	2	1	45	100	
7	County Road HH	South of Newville Road	945	83		17	2	1	45	100	
8	Tehama Street	Northeast of SR 32	1,602	83		17	2	1	45	100	
9	5th Street	North of Walker Street (SR 32)	756	83		17	2	1	35	100	
10	5th Street	South of Walker Street (SR 32)	1,427	83		17	2	1	35	100	
11	4th Street	North of Walker Street (SR 32)	1,210	83		17	2	1	35	100	
12	4th Street	South of Walker Street (SR 32)	2,141	83		17	2	1	35	100	
13	3rd Street	North of Walker Street (SR 32)	1,079	83		17	2	1	35	100	
14	3rd Street	South of Walker Street (SR 32)	1,240	83		17	2	1	35	100	
15	2nd Street	North of Walker Street (SR 32)	474	83		17	2	1	35	100	
16	2nd Street	South of Walker Street (SR 32)	725	83		17	2	1	35	100	
17	A Street	North of Walker Street (SR 32)	209	83		17	2	1	35	100	
18	A Street	South of Walker Street (SR 32)	406	83		17	2	1	35	100	
19	East Street	North of Walker Street (SR 32)	2,482	83		17	2	1	35	100	
20	East Street	South of Walker Street (SR 32)	3,072	83		17	2	1	35	100	
21	Woodward Avenue	North of Walker Street (SR 32)	1,951	83		17	2	1	35	100	
22	County Road M 1/2	North of Walker Street (SR 32)	963	83		17	2	1	35	100	
23	4th Street	Mill Street to Yolo Street	1,350	83		17	2	1	35	100	
24	Yolo Street	West of Papst Avenue	1,045	83		17	2	1	35	100	
25	County Road 16	West of County Road HH	1,160	83		17	2	1	35	100	



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FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-113 City of Orland General Plan Update
Description: Existing Conditions
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
26	Cortina Drive	North of South Street	723	83		17	2	1	35	100	
27	8th Street	North of South Street	1,039	83		17	2	1	35	100	
28	6th Street	North of South Street	5,372	83		17	2	1	35	100	
29	6th Street	South of South Street	4,612	83		17	2	1	45	100	
30	Railroad Avenue	North of South Street	1,983	83		17	2	1	35	100	
31	East Street	North of South Street	2,311	83		17	2	1	35	100	
32	South Street	West of Papst Avenue	2,010	83		17	2	1	35	100	
33	Papst Avenue	South of South Street	1,284	83		17	2	1	45	100	
34	South Street	West of County Road N	981	83		17	2	1	45	100	
35	County Road N	North of South Street	206	83		17	2	1	35	100	
36	SR 32 (Walker Street)	East of I-5	5,600	83		17	2	1	35	100	
37	SR 32 (Walker Street)	East of 6th Avenue	10,800	83		17	2	1	35	100	
38	SR 32 (Walker Street)	East of Papst Avenue	7,600	83		17	2	1	45	100	
39	SR 32 (Walker Street)	East of County Road N	7,600	83		17	2	1	55	100	

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-113 City of Orland General Plan Update
Description: Future (2028)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Almond Way	6th Street to 8th Street	1,025	83		17	2	1	35	100	
2	Monterey Street	5th Street to 6th Street	1,425	83		17	2	1	35	100	
3	6th Street	Trinity Street to Shasta Street	6,369	83		17	2	1	35	100	
4	Tehama Street	5th Street to 6th Street	1,826	83		17	2	1	35	100	
5	Shasta Street	Melanie Circle to Woodward Avenue	1,374	83		17	2	1	35	100	
6	Newville Road	West of County Road HH	5,146	83		17	2	1	45	100	
7	County Road HH	South of Newville Road	4,393	83		17	2	1	45	100	
8	Tehama Street	Northeast of SR 32	1,830	83		17	2	1	45	100	
9	5th Street	North of Walker Street (SR 32)	775	83		17	2	1	35	100	
10	5th Street	South of Walker Street (SR 32)	1,453	83		17	2	1	35	100	
11	4th Street	North of Walker Street (SR 32)	1,244	83		17	2	1	35	100	
12	4th Street	South of Walker Street (SR 32)	2,209	83		17	2	1	35	100	
13	3rd Street	North of Walker Street (SR 32)	1,151	83		17	2	1	35	100	
14	3rd Street	South of Walker Street (SR 32)	1,298	83		17	2	1	35	100	
15	2nd Street	North of Walker Street (SR 32)	528	83		17	2	1	35	100	
16	2nd Street	South of Walker Street (SR 32)	799	83		17	2	1	35	100	
17	A Street	North of Walker Street (SR 32)	243	83		17	2	1	35	100	
18	A Street	South of Walker Street (SR 32)	436	83		17	2	1	35	100	
19	East Street	North of Walker Street (SR 32)	2,780	83		17	2	1	35	100	
20	East Street	South of Walker Street (SR 32)	3,286	83		17	2	1	35	100	
21	Woodward Avenue	North of Walker Street (SR 32)	2,265	83		17	2	1	35	100	
22	County Road M 1/2	North of Walker Street (SR 32)	1,517	83		17	2	1	35	100	
23	4th Street	Mill Street to Yolo Street	1,402	83		17	2	1	35	100	
24	Yolo Street	West of Papst Avenue	1,222	83		17	2	1	35	100	
25	County Road 16	West of County Road HH	1,726	83		17	2	1	35	100	



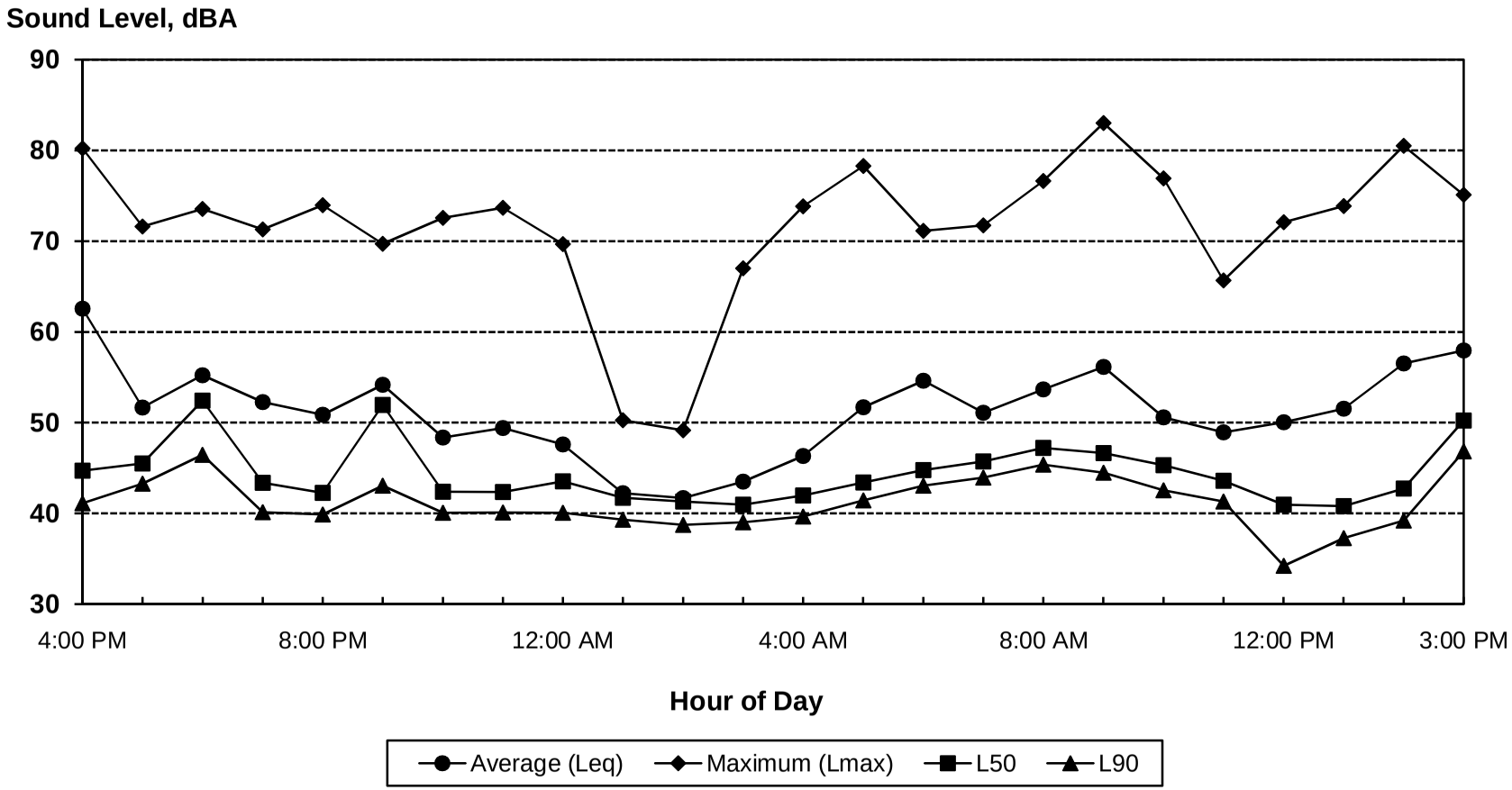
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FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2007-113 City of Orland General Plan Update
Description: Future (2028)
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
26	Cortina Drive	North of South Street	1,683	83		17	2	1	35	100	
27	8th Street	North of South Street	1,529	83		17	2	1	35	100	
28	6th Street	North of South Street	5,542	83		17	2	1	35	100	
29	6th Street	South of South Street	4,612	83		17	2	1	45	100	
30	Railroad Avenue	North of South Street	2,043	83		17	2	1	35	100	
31	East Street	North of South Street	2,477	83		17	2	1	35	100	
32	South Street	West of Papst Avenue	4,080	83		17	2	1	35	100	
33	Papst Avenue	South of South Street	1,326	83		17	2	1	45	100	
34	South Street	West of County Road N	1,717	83		17	2	1	45	100	
35	County Road N	North of South Street	916	83		17	2	1	35	100	
36	SR 32 (Walker Street)	East of I-5	17,756	83		17	2	1	35	100	
37	SR 32 (Walker Street)	East of 6th Avenue	22,626	83		17	2	1	35	100	
38	SR 32 (Walker Street)	East of Papst Avenue	20,646	83		17	2	1	45	100	
39	SR 32 (Walker Street)	East of County Road N	17,024	83		17	2	1	55	100	

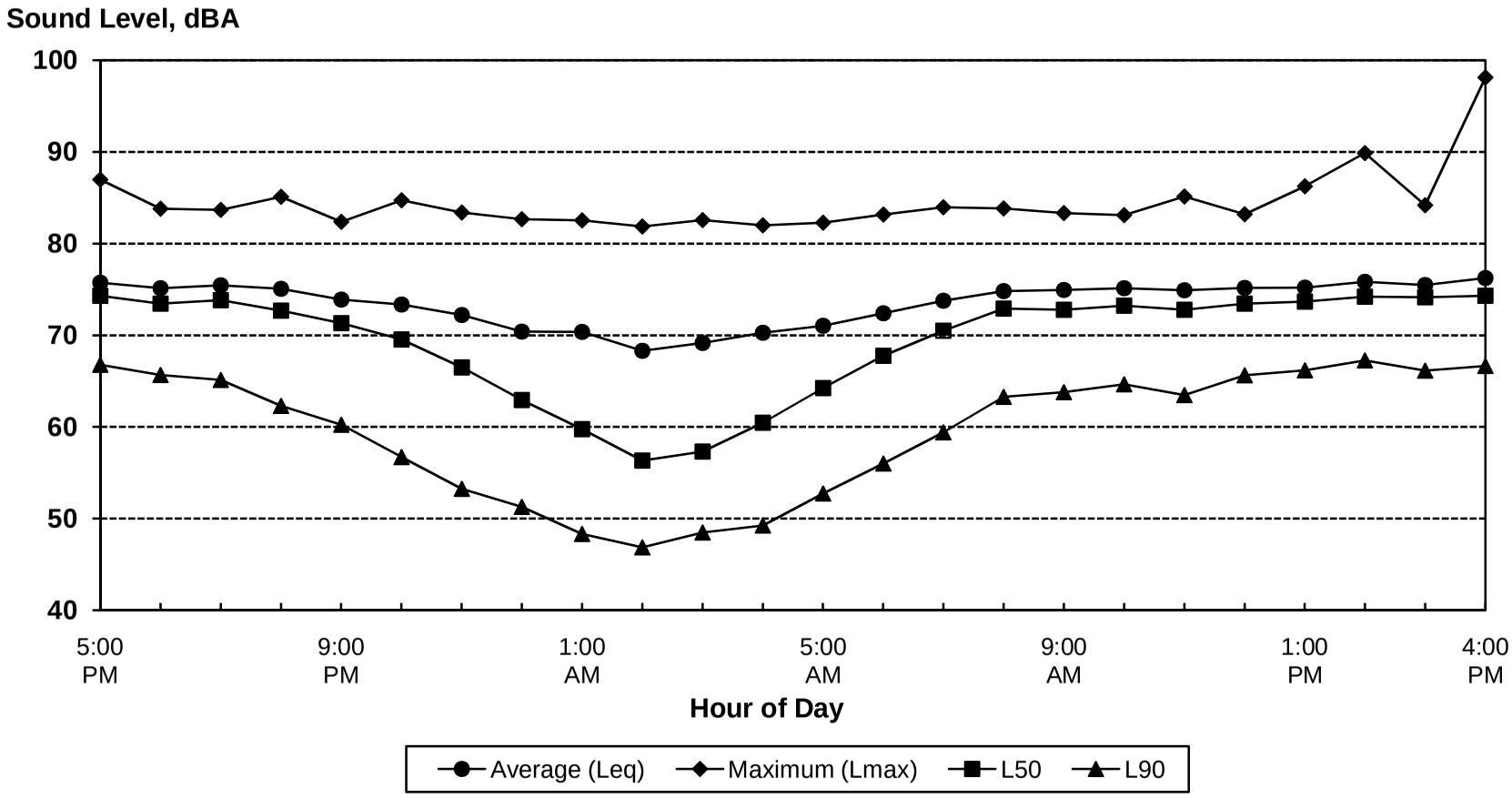
City of Orland General Plan & EIR
24hr Continuous Noise Monitoring at Site A
January 21-22, 2008



Ldn: 57 dB

BOLLARD
Acoustical Consultants

City of Orland General Plan & EIR
24hr Continuous Noise Monitoring at Site B
January 21-22, 2008



Ldn: 78 dB

BOLLARD
Acoustical Consultants

APPENDIX E CITY OF ORLAND GENERAL PLAN UPDATE TRAFFIC IMPACT STUDY

TRAFFIC IMPACT STUDY

FOR

THE CITY OF ORLAND GENERAL PLAN UPDATE

Orland, CA

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May 19, 2010

TRAFFIC IMPACT STUDY FOR THE CITY OF ORLAND GENERAL PLAN UPDATE

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EXECUTIVE SUMMARY

This *Executive Summary* is a brief overview of the analysis presented in this traffic impact study. It is not intended to be a comprehensive description of the analysis. For more details, the reader is referred to the full description presented in the traffic impact study.

This traffic impact study presents an analysis of the traffic-related effects of the City of Orland General Plan Update. The City is located in Glenn County in the Sacramento Valley, along Interstate 5 (I-5), approximately 100 miles north of Sacramento.

Implementation of the proposed General Plan Update would result in changes to land uses and the circulation system in the City. These changes would affect traffic operations on roadway in the City. This traffic impact study includes analysis of:

- 14 intersections, and
- 39 roadway segments.

These study facilities are analyzed under Existing Conditions, and future year conditions with implementation of the General Plan Update. A 20-year planning period has been established for the General Plan Update, and has been used to define future year conditions for this traffic impact study.

Under Existing conditions, all the study intersections and roadway segments experience operating conditions which are considered acceptable. Therefore, this traffic impact study does not present recommended improvements for study facilities.

Under future year conditions with implementation of the General Plan Update, five study intersections and three study roadway segments would experience operating conditions which are considered unacceptable, and would represent significant project-related impacts. This traffic impact study presents mitigation measures for these facilities.

This traffic impact study also presents a screening-level assessment of potential impacts beyond the 20-year planning period, and presents long-range mitigation measures.

INTRODUCTION

STUDY PURPOSE

This traffic impact study presents an analysis of the transportation-related effects of the proposed City of Orland General Plan Update. The following is a brief description of the City and the General Plan Update. Much of the following descriptions are from two documents: the *City of Orland General Plan Background Report* (City of Orland 2008a), and the *City of Orland General Plan Draft* (City of Orland 2008b). More detailed descriptions are provided in these two documents.

LOCATION

The City of Orland is located in Glenn County in the Northern California Sacramento Valley, approximately 100 miles north of Sacramento. The City encompasses approximately 1,876 acres, or 2.93 square miles, and is located along I-5. **Figure 1** shows the area in the vicinity or Orland. The Orland Planning Area encompasses 4,110 acres, or 6.42 square miles.

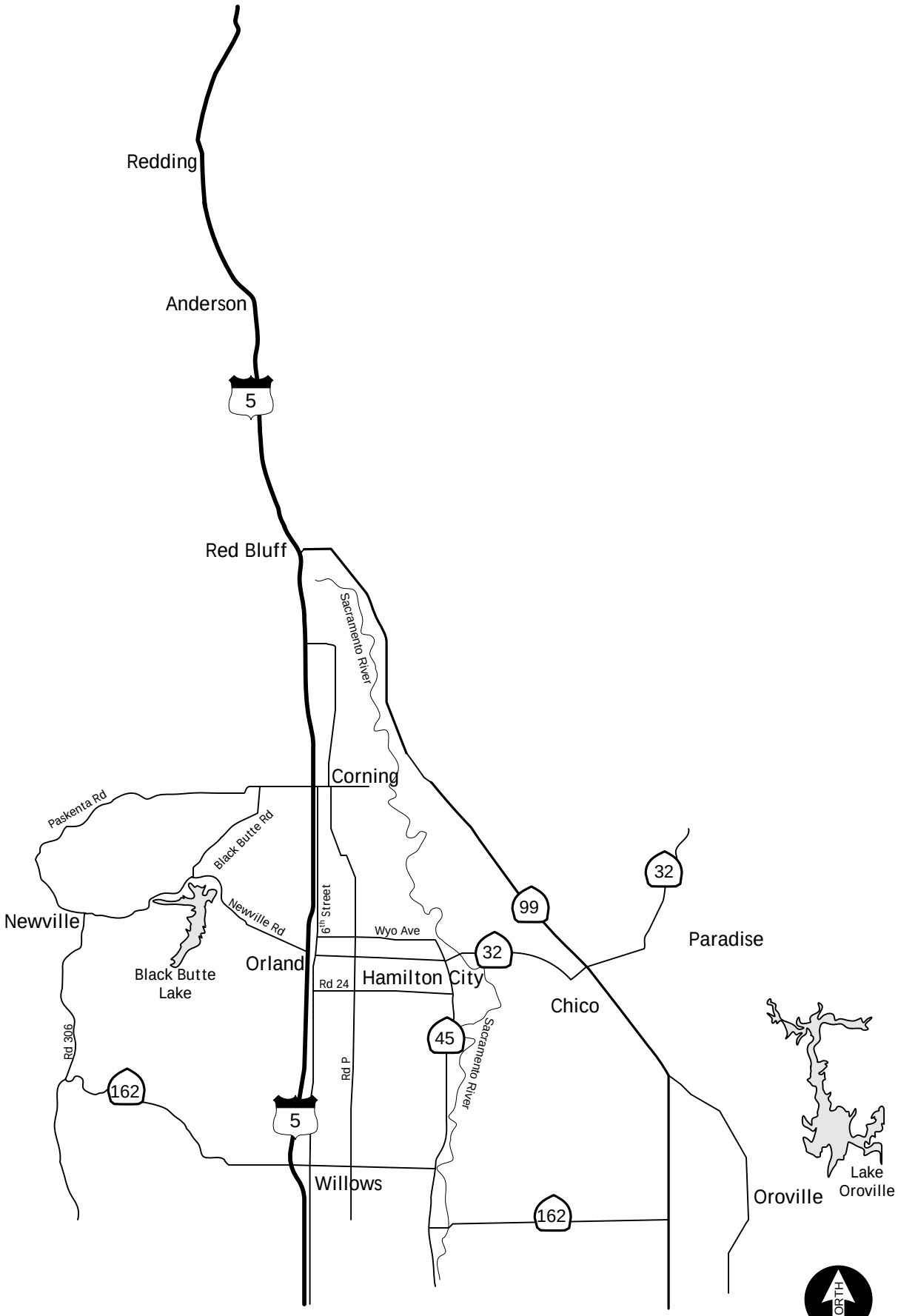
PROJECT DESCRIPTION

The City of Orland General Plan, including its comprehensive goals, policies, and implementing actions would serve to maintain and enhance the quality of life in the City. The General Plan is often referred to as the local government "Constitution". The goals, policies, and implementation actions in this General Plan would govern decisions relating to land use, traffic circulation, housing, community design, conservation and open space, noise, safety, and community facilities. The document would serve to guide the City of Orland as it grows over the next 15 to 20 years.

Background and Purpose

In 2003, the City of Orland updated its General Plan through a comprehensive review of all elements. Previous to that, minor revisions to the General Plan had been made in 2000, with the original adoption of the Plan in 1974. Additionally, certain elements such as Land Use and Circulation were updated in 1991, 1993, and 1994.

The purpose of the 2008 General Plan Update is to review and revise the 2003 General Plan, to reflect upon changing conditions and issues, and to provide a direction for the future growth of the City in the next 15-20 years. Following an extended period of growth that occurred in Orland from 2002 to 2006, the City determined that the Plan required an update to ensure that it is achieving its long-term goals. The Orland General Plan is a comprehensive document that provides policies and guidelines for the future expansion and development of the community.



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VICINITY MAP

City of Orland General Plan
Update Traffic Impact Study

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figure 1

California state law requires that every city and county adopt a General Plan to guide physical development of the land within the jurisdictions' boundaries. The plan acts as a "Constitution" for the jurisdiction and establishes guidelines for land use and development. Since the General Plan affects current and future generations, state law requires that the plan take a "long-term" perspective. Typically, General Plans look 10 to 20 years into the future. The City of Orland General Plan addresses planning for the City through the year 2028.

Land Use and Circulation

The City of Orland General Plan is composed of several components, referred to as "elements". A complete description of these elements is presented in the *City of Orland General Plan Draft*. Two elements of the General Plan related to the transportation effects are Land Use and Circulation.

Land Use. The Land Use element provides guidance for the physical form of the community. A land use diagram identifies the existing and proposed land uses within the City. The land use diagram is supported by descriptions of allowed uses and development densities for each land use designation. Additionally, the land use diagram identifies those areas where the City of Orland anticipates growth in the future, with the intent of avoiding incompatible land use changes by neighboring agencies and jurisdictions. **Figure 2** presents the land use diagram for the Orland General Plan Update.

Circulation. The Circulation element provides a framework to guide transportation planning throughout the City of Orland and its planning area. Within the Orland General Plan, the Circulation element is coordinated and consistent with portions of the Land Use, Public Service and Facilities, and Safety elements which address topics directly related to circulation and transportation. Topics include roadway networks, road improvement standards guidelines, road maintenance, pedestrian and bicycle circulation, railroad, and public transit. **Figure 3** presents the proposed circulation system for the Orland General Plan Update.

Distribution of Land Use Types

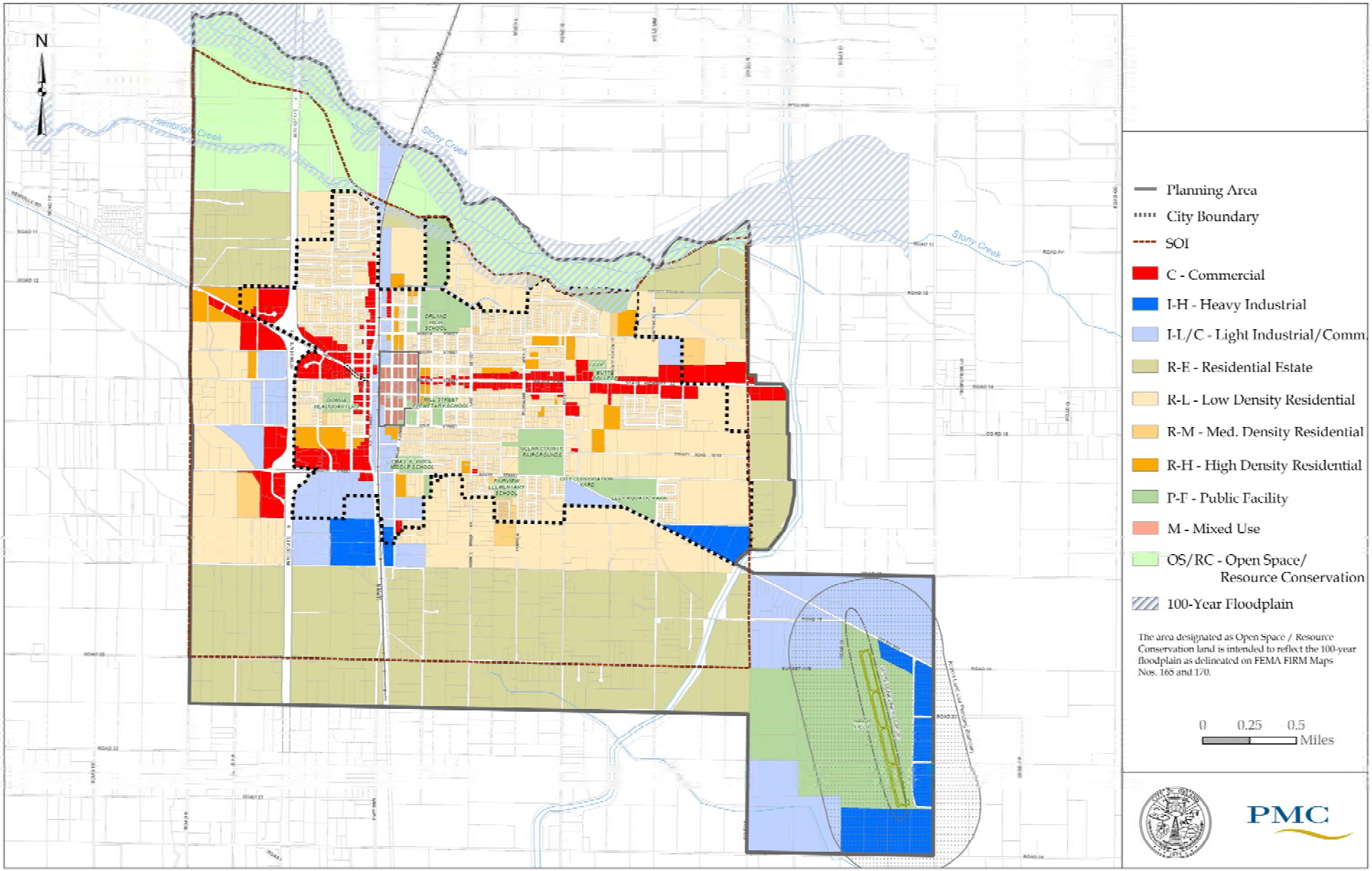
The following is a generalized description of current land use patterns within the City:

- The Central Business District (historic downtown) is approximately bounded by the California Northern Railroad Company tracks to the west, Tehama Street to the north, 3rd Street to the East, and Yolo Street to the south. In addition to commercial uses, this area includes city and county government buildings, schools, and other public facilities.

- A commercial/industrial strip is located along the length of 6th Street and the California Northern Railroad Company tracks.

- A commercial strip is located along the length of East Walker Street, which is designated as State Route (SR) 32.

- Commercial areas are located at the interchanges of I-5.



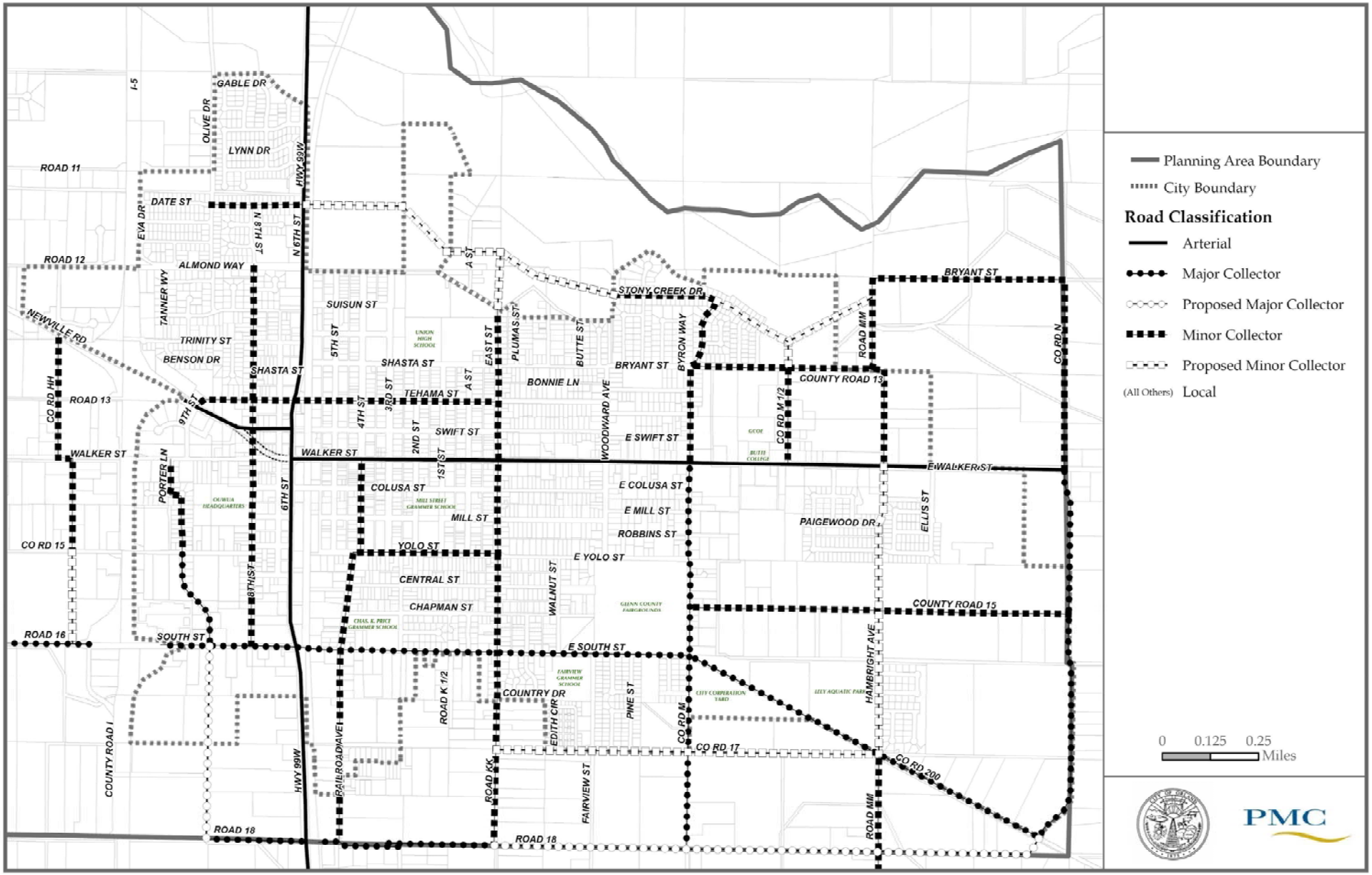
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GENERAL PLAN UPDATE LAND USE DIAGRAM

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City of Orland General Plan
Update Traffic Impact Study

figure 2



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FUNCTIONAL CLASSIFICATIONS

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City of Orland General Plan
Update Traffic Impact Study

figure 3

- Residential development is located east of the California Northern Railroad Company tracks, and in the northern and eastern central portions of the City.

Growth Forecasts

The population of Orland in January 2007, as estimated by the California Department of Finance, was 7,189. The estimated number of households in Orland in January 2007 was 2,470. The number of households in Orland was estimated by dividing the population value by the average household size in the City according to the California Department of Finance, which was 2.91.

The 2007 population and housing estimates were used to prepare a series of population and housing projections for the General Plan 20-year planning period: 2008 through 2028. Table 10-2 and Table 10-8 of the *City of Orland General Plan Background Report* (City of Orland 2008a) present three sets of population and housing projections using low, medium, and high growth rates. **Table 1** presents a summary of the population and housing estimates, and projections based on the medium growth rates

Traffic count data were collected for this traffic impact study during late 2007. At the time these traffic count data were collected, Orland was estimated to have approximately 2,500 households. The number of households is projected to increase from 2,500 in late 2007 to 3,902 at the end of the General Plan planning period in 2028. This would be an increase of approximately 1,400 households.

Goals, Policies and Programs

Section 3.1 of the *City of Orland General Plan Draft* (City of Orland 2008b) presents Circulation Element goals, policies, programs, and standards. Section 3.1 addresses a wide range of topics related to circulation. Policy 3.3.A of the General Plan states:

> "**Policy 3.3.A:** Construct street and highway improvements to maintain an overall daily roadway Level of Service of "C" with an a.m. and p.m. peak-hour roadway and intersection Level of Service of "D" or better, unless other public health, safety, or welfare factors determine otherwise."

Program 3.3.C.1 of the General Plan states:

> "**Program 3.3.C.1:** Improve intersections operating at less than p.m. peak hour Level of Service "D" conditions by adding appropriate turning lanes to congested approaches, widening intersection approaches, or installing traffic signals:
>
> - "Signalization shall be predicated upon a warrant analysis, public safety and the discretion of the City. Signalization shall be considered at, but not limited to, the following intersections: a) South and Sixth Streets; b) Date and Sixth Streets; c) Papst and Walker Streets; d) I-5 northbound ramps and SR 32; e) I-5 southbound ramps and SR 32; f) Newville Road and County Road HH.

Table 1. Growth Forecasts

Type of Growth	Year					
	January 2007	2008	2013	2018	2023	2028
Population	7,189	7,347	8,192	9,133	10,183	11,354
Households	2,470	2,525	2,815	3,139	3,499	3,902

Source: City of Orland 2008a.
Notes: Based on the "Middle" forecasts, which assume a 2.2% average growth rate.

- "Realign intersections of Papst & Yolo Streets and County Road HH & County Road 14.

- "Complete road connections at Papst & Road 13 and Rennat & Almond Way.

- "Refer to Caltrans any request to signalize a State Route located in the City."

For a complete description of Circulation Element goals, policies, programs, and standards, the reader is referred to Section 3.1 of the *City of Orland General Plan Draft.*

OVERALL ANALYSIS APPROACH

As noted above, this traffic impact study presents an analysis of the traffic-related effects of the Orland General Plan Update. Per Section 15125(a) of the State California Environmental Quality Act (CEQA) Guidelines, this traffic study presents a description of existing conditions as the environmental setting. Section 15125(a) notes, "This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." The description of existing conditions includes a description of traffic operating conditions at key study intersections and roadway segments.

As noted in Section 1.3 of the *City of Orland General Plan Draft* (City of Orland 2008b), "Typically, General Plans look 10 to 20 years into the future. This plan addresses planning for the City of Orland through the year 2028." Consistent with this approach, this traffic study presents a description of traffic operating conditions in the year 2028, with implementation of the General Plan Update.

It should be noted that development through the year 2028 would not result in full build-out of land shown in **Figure 2,** the land use diagram for the Orland General Plan Update. The land use diagram provides for planning of growth in the Orland area beyond the year 2028.

Traffic studies of relatively small individual projects often analyze both the near-term direct impacts of an individual project, and the long-term cumulative impacts of project in the context of area-wide growth. The Orland General Plan Update is considered a project, as defined by CEQA. But, at the same time, area-wide growth is intrinsic to the General Plan Update. Therefore, the analysis of 2028 conditions with the General Plan Update is considered both the analysis of direct impacts, and the analysis of cumulative impacts.

EXISTING SETTING

This section of this traffic impact study presents a description of existing conditions in the study area. Information presented in this section of the study is based on on-site field observations, traffic count data collected for this study, and other data available from local and state agencies. Portions of the information presented below are from the *City of Orland General Plan Background Report* (City of Orland 2008a).

This section of the traffic impact study also describes analysis methods applied for this study, and thresholds used to determine the significance of project-related effects.

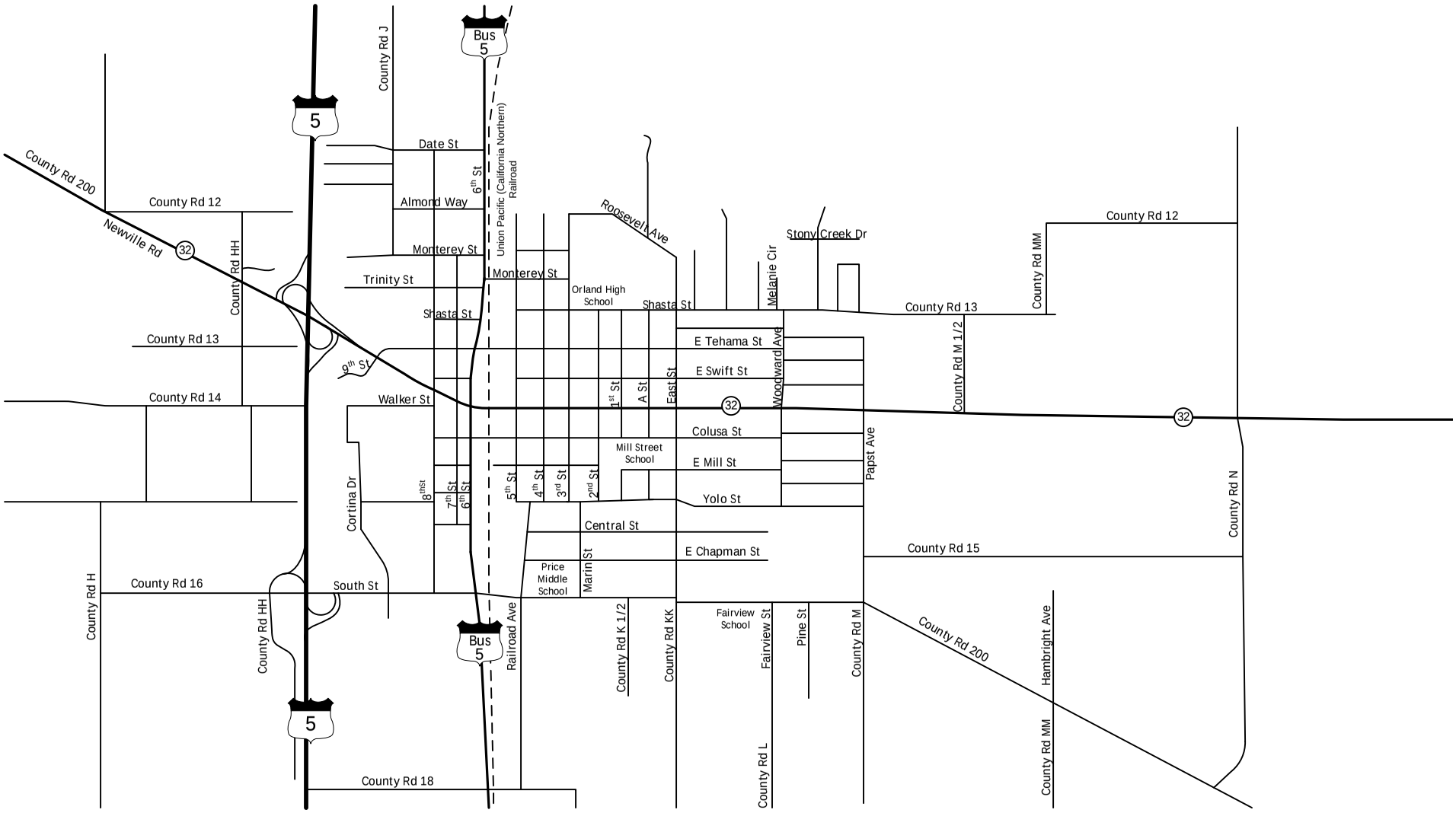
TRANSPORTATION SYSTEM

The existing circulation system in the Orland area is presented in **Figure 4**. The system includes approximately 27 miles of paved roadway. State facilities consist of I-5 on the westerly boundary of the existing City Limits and SR 32, which extends east from I-5 through central Orland. The balance of the circulation system is maintained by the City of Orland and generally consists of two-lane roadway facilities with stop sign controls at intersections. There are currently three signalized intersections on SR 32, at East Street, 6th Street, and 8th Street. There is a signalized intersection at South Street and 6th Street. Additionally, a four-way signalized intersection has been planned at the intersection of Papst Avenue & SR 32.

The existing roadway system in the Orland area is composed of residential local streets, collectors (major and minor), arterials and, freeways. **Figure 3** displays the functional classification of the street system within the Orland area. The designation of streets and the system of arterials, collectors and local streets is based upon:

- the travel needs of auto, truck, and transit uses;
- the network pattern of existing streets; and
- the access needs of adjacent land uses.

The primary function of local streets is to provide access to individual land uses. Collector streets channel traffic from the local streets and deliver it to the larger "through" streets. Arterial streets are the major movement streets and are intended to move larger volumes of traffic across the community and provide access to and from highways, freeways, and areas beyond the urban boundaries. However, collectors and arterials may also provide direct access to individual properties and uses.



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STUDY AREA

City of Orland General Plan
Update Traffic Impact Study

figure 4

State Routes

The following is a description of state routes in the study area.

Interstate 5 is a north-south four-lane freeway bisecting the western portion of the plan area. I-5 currently carries an average of approximately 25,000 vehicles per day through the City of Orland, according to Caltrans estimates for 2008. Within the plan area, I-5 includes interchanges at South Street (County Road 16) and at SR 32/Newville Road.

The South Street interchange on I-5 provides a two-lane overcrossing with ramp intersections separated by approximately 900 feet. The interchange consists of a partial cloverleaf design with loop ramps provided for access to the freeway. The ramp intersections are currently controlled with stop signs.

The SR 32/Newville Road interchange on I-5 provides a two-lane overcrossing with ramp intersections separated by approximately 1,100 feet. The interchange consists of a partial cloverleaf design with loop ramps provided to supplement access to the freeway in the northwest and southeast quadrants. Off-ramps are currently controlled with stop signs.

State Route 32 through Orland generally consists of a two-lane highway with a center two-way left-turn lane (CTWLTL). SR 32 links I-5 in Orland in the west to the Lassen National Forest east of the City of Chico. Between I-5 and SR 99, SR 32 is a major route for trucks and serves a significant amount of recreational traffic. SR 32 traverses the City of Orland downtown business district and is designated as Walker Street from 6th Street to the eastern city limits. SR 32 primarily serves as a commercial fronting along the Walker Street portion with on-street parking located in that area.

In 2006, a major realignment of SR 32 was undertaken within the City of Orland. This realignment utilized a pair of curves to bring the highway into perpendicular intersection with 6th Street. Additionally, existing traffic signals were upgraded and new signals were installed. An important purpose for the realignment was to correct a condition involving large trucks, which were having difficulty making the offset turns without encroaching into opposing traffic lanes. Before the realignment, turning trucks frequently would mount curbs at the corners and swing out into the lanes of oncoming traffic.

Arterials

Arterials streets are intended to handle the movement of goods and people through the area and serve inter-county and inter-regional transportation needs. The City of Orland currently has four designated arterial streets, two of which are I-5 and SR 32. Because of this, Caltrans currently maintains all but South Street and 6th Street of the City's arterial system. The following streets comprise the City's arterial system:

- I-5,
- SR 32,
- 6th Street, and
- South Street (I-5 to 6th Street).

6th Street is the only north-south oriented non-freeway arterial in Orland. 6th Street is also referred to as County Road 99 or Highway 99W. Land uses along 6th Street are primarily commercial and industrial, but also include some residential uses to the north, from Almond Way to the northern City limits.

South Street, the City's other local arterial street, is aligned in an east-west direction and connects 6th Street to I-5. Like SR 32, South Street provides access from I-5 to commercial and residential areas in Orland, and to agricultural areas in the County.

Major Collectors

Major collector streets provide circulation between arterial streets and major activity centers. Within residential areas, traffic is directed onto major collector streets and then to connecting arterials. Small scale retail or commercial establishments may have direct access to major collectors, but direct access to individual residential lots is discouraged to improve traffic safety and efficiency. The following streets comprise the City's major collectors:

- South Street (6th Street to Papst Avenue),
- County Road 200 (Papst Avenue to County Road N),
- County Road 18 (Cortina Drive to County Road 200),
- Cortina Drive (Newport Street to County Road 18),
- Papst Avenue/County Road M (SR 32 to County Road 18),
- County Road N (SR 32 to County Road 200), and
- County Road 16 (West of I-5).

Minor Collectors

The primary non-local road type in the City is minor collectors, which feed traffic from residential areas to major collectors or arterials. The following streets comprise the City's minor collector system (an asterisk " * " indicates proposed roadways):

- Date Street & extension (Olive Street to 6th, *6th to County Road N),
- Bryant Street (Papst Avenue to County Road MM),
- Tehama Street (SR 32 to East Street),
- *County Road 17 (East Street to County Road MM),
- County Road HH (County Road 16 to County Road 200),
- Hillsan Street (Papst Avenue to County Road N),
- Railroad Avenue (Yolo Street to County Road 18),
- Yolo Street (Railroad Avenue to East Street),
- 4th Street (Yolo Street to SR 32),
- Cortina Drive/Porter Lane (Newport Avenue to Walker Street),
- East Street (County Road 18 to Roosevelt Avenue;*Roosevelt Avenue to Date Street),
- Papst Avenue (SR 32 to Date Street),
- *County Road M ½ (Bryant Street to Date Street),
- County Road MM (County Road 18 to County Road 200;*County Road 200 to Date Street),

- County Road N (SR 32 to Date Street), and
- 8th (South Street to Date Street).

Local Streets and Alleys

Local streets provide direct access to individual adjoining properties. Local streets are accessed by at least two other streets. Alleys provide direct access to individual adjoining properties.

Truck Routes

Trucks are routed through the City for safety and to minimize their impact on residential areas. Local deliveries are allowed on all streets. However, through truck traffic is restricted to streets on the designated truck routes. The following streets comprise the designated truck routes in the City:

- SR 32,
- 6th Street (County Road 99),
- South Street (I-5 to the eastern boundary of Railroad Avenue),
- Railroad Avenue (South Street to County Road 18),
- Papst Avenue (SR 32 to South Street), and
- County Road 200 (Papst Avenue to County Road N).

These truck routes are shown on **Figure 5**.

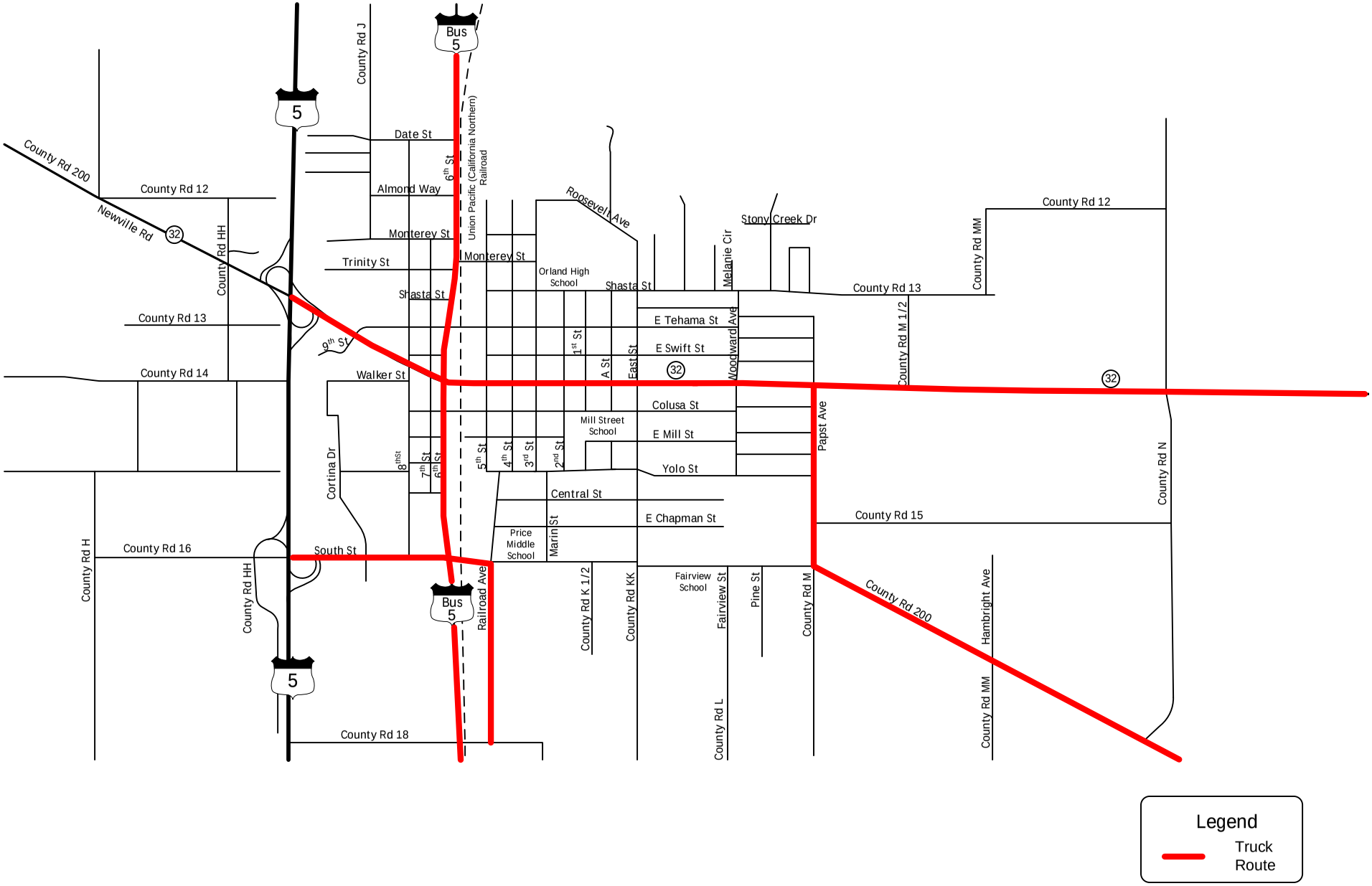
Rail Service

The City of Orland is served by railroad lines leased/operated by the California Northern Railroad Company, which provide freight hauling service. The line runs north-south between 6th Street and 5th Street with generally two trips per day. Passenger service is provided by Amtrak along the Sacramento-Dunsmuir line. The nearest passenger stop is in Chico.

Rail-served industrial activities, within and adjacent to the rail line, contribute to the City's economic base. Freight-rail service plays a key role in the transportation of heavy or bulky materials produced locally and shipped to regional markets. Rail spurs serving these activities represent an important asset to the City of Orland and Glenn County.

Glenn Ride Bus Service

Public transportation bus service is provided to the City of Orland through Glenn Ride, which is a transit service provided by Glenn County. It is a fixed-route bus system with seven round trips every weekday and three round trips on Saturday from Willows to Chico. There are currently 14 bus stops in Orland.



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TRUCK ROUTES

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City of Orland General Plan
Update Traffic Impact Study

figure 5

School Bus Service

School buses are operated by the Orland School District. The district currently operates approximately 15 buses.

Taxi Service

There are currently two taxi services operating within the City of Orland – one private, and one subsidized by Glenn County.

Pedestrian Facilities

City standards require sidewalks along all improved streets except in the industrial areas. The City is planning for a pedestrian facility to include a multi-use path along Stony Creek. Additionally, the City has planned to provide multi-use trails within the right-of-ways of undergrounded canals, which could be utilized as pedestrian pathways.

Bicycle Facilities

Presently there are no formally designated bicycle lanes or bicycle facilities in the City. However, the City understands the need to move people through the community. As mentioned above, the City is planning for a multi-use pathways along Stony Creek, as well as multi-use pathways within the right-of-ways of undergrounded canals. Additionally, street widths can accommodate bicycle traffic in some areas and bicycle racks are available at schools and parks.

Airport Facilities

There are two publicly-owned airports in Glenn County: Haigh Field, located in Orland, and the Willows-Glenn Airport. Haigh Field, located southeast of the City off County Road 28, has a 4,500-foot paved and "pilot controlled" lighted runway that is 60 feet wide. Its length qualifies it as a "Basic Transport" facility, suitable for use by general aviation users and capable of handling small or light business jets. There is sufficient land area for expanding service and facilities to meet the City's needs and also those of the region.

Regional commercial carrier service is available at the City of Chico Municipal Airport where international and national connections can be made through San Francisco International Airport. The nearest major regional and international service is provided by Sacramento International Airport.

STUDY AREA INTERSECTIONS

The traffic-related effects of the Orland General Plan were assessed for this traffic impact study by analyzing traffic operations at intersections that would serve General Plan-related travel. The following intersections were selected for analysis in consultation with the City Engineer (Friend pers. comm.):

1. Newville Road & County Road HH

2. Newville Road & I-5 Southbound Ramps
3. Newville Road (SR 32) & I-5 Northbound Ramps
4. 6th Street & Swift Street
5. Walker Street (SR 32) & 6th Street
6. Walker Street (SR 32) & East Street
7. Walker Street (SR 32) & Papst Avenue
8. SR 32 & County Road MM (Future)
9. SR 32 & County Road N
10. South Street & I-5 Southbound Ramps
11. South Street & I-5 Northbound Ramps
12. South Street & Cortina Drive
13. South Street & 6th Street
14. South Street & Papst Avenue

The locations of the study intersections are presented in **Figure 6**. The numbers listed above correspond to the intersection numbers shown in the figure.

STUDY AREA ROADWAY SEGMENTS

In addition to analyzing intersections, the traffic-related effects of the Orland General Plan on roadway segments were assessed for this traffic impact study. The following roadway segments were selected for analysis in consultation with the City Engineer (Friend pers. comm.):

1. Almond Way, between 6th Street & 8th Street
2. Monterey Street, between 5th Street & 6th Street
3. 6th Street, between Trinity Street & Shasta Street
4. Tehama Street, between 5th Street & 6th Street
5. Shasta Street, between Melanie Circle & Woodward Avenue
6. Newville Road, west of County Road HH
7. County Road HH, south of Newville Road
8. Tehama Street, northeast of SR 32
9. 5th Street, north of Walker Street (SR 32)
10. 5th Street, south of Walker Street (SR 32)
11. 4th Street, north of Walker Street (SR 32)
12. 4th Street, south of Walker Street (SR 32)
13. 3rd Street, north of Walker Street (SR 32)
14. 3rd Street, south of Walker Street (SR 32)
15. 2nd Street, north of Walker Street (SR 32)
16. 2nd Street, south of Walker Street (SR 32)
17. A Street, north of Walker Street (SR 32)
18. A Street, south of Walker Street (SR 32)
19. East Street, north of Walker Street (SR 32)
20. East Street, south of Walker Street (SR 32)
21. Woodward Avenue, north of Walker Street (SR 32)
22. County Road M½, north of Walker Street (SR 32)
23. 4th Street, between Mill Street & Yolo Street

24. Yolo Street, west of Papst Avenue
25. County Road 16, west of County Road HH
26. Cortina Drive, north of South Street
27. 8th Street, north of South Street
28. 6th Street, north of South Street
29. 6th Street, south of South Street
30. Railroad Avenue, north of South Street
31. East Street, north of South Street
32. South Street, west of Papst Avenue
33. Papst Avenue, south of South Street
34. South Street (County Rd 200), west of County Road N
35. County Road N, north of South Street (County Road 200)
36. SR 32, east of I-5
37. SR 32 (Walker Street), east of 6th Street
38. SR 32 (Walker Street), east of Papst Avenue
39. SR 32 (Walker Street), east of County Road N

The locations of study roadway segments are presented in **Figure 7**. The numbers listed above correspond to the roadway segment numbers shown on this figure.

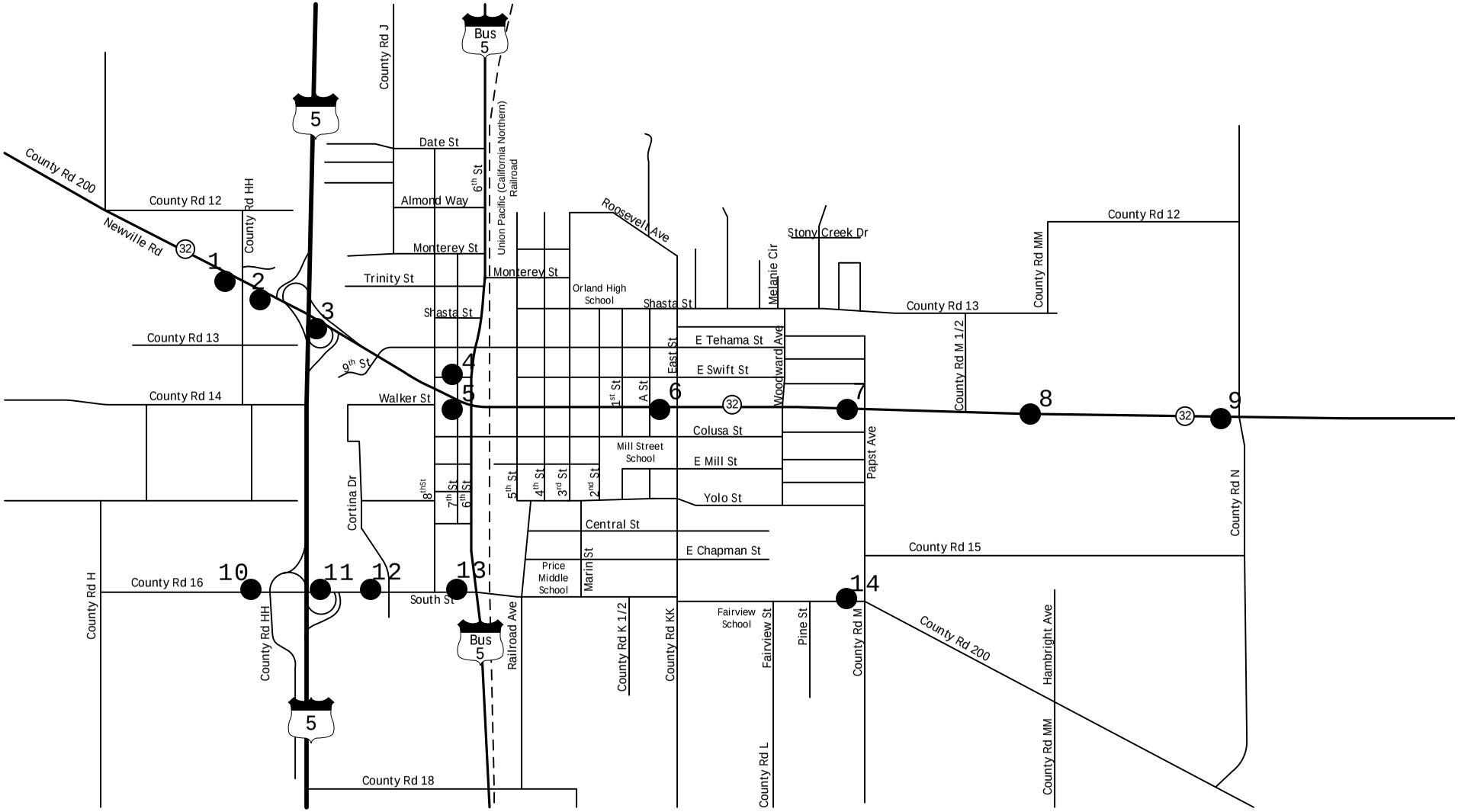
The study roadway segments are specific to certain locations on the roadway network. However, in some cases, a roadway segment represents larger portions of roadway segments. For example, analysis results for roadway segment #5, Shasta Street, between Melanie Circle & Woodward Avenue, apply to Shasta Street from East Street to Woodward Avenue. The descriptions of location listed above and used in this traffic impact study are as specific as possible to minimize ambiguity.

METHODOLOGY

The following is a description of the methods used in the analysis presented in this traffic impact study.

Intersection Level of Service Analysis Procedures

Level of service (LOS) analysis provides a basis for describing existing traffic conditions and for evaluating the significance of project-related traffic impacts. Level of service measures the quality of traffic flow and is represented by letter designations from A to F, with a grade of A referring to the best conditions, and F representing the worst conditions. The characteristics associated with the various LOS for intersections are presented in **Table 2**.



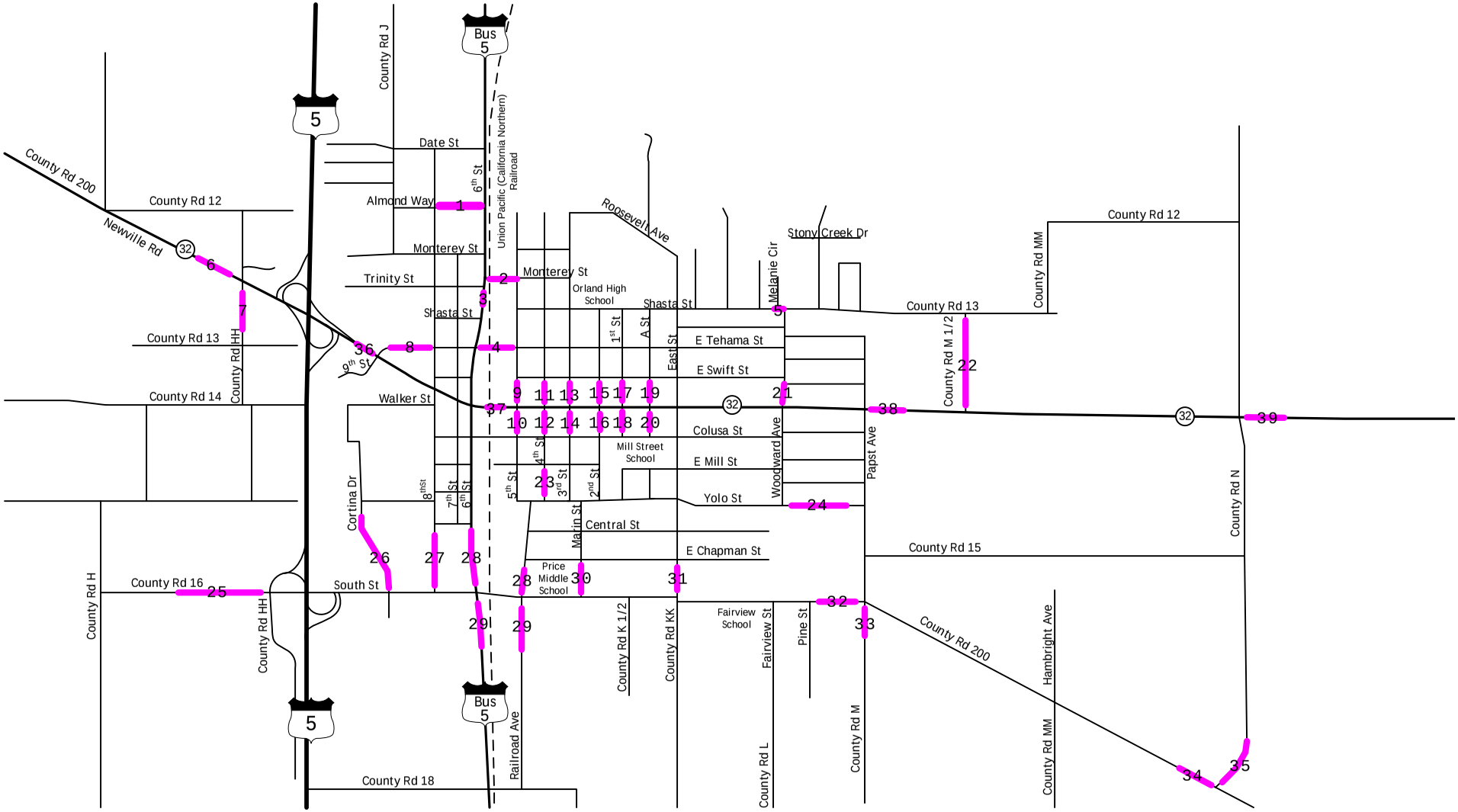
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STUDY INTERSECTIONS

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City of Orland General Plan
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figure 6



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STUDY ROADWAY SEGMENTS

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City of Orland General Plan
Update Traffic Impact Study

figure 7

Table 2. Intersection Level of Service Definitions

Level of Service	Signalized Intersections	Unsignalized Intersections
A	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 seconds/vehicle	Little or no delay. Delay ≤ 10 seconds/vehicle
B	Uncongested operations, all queues clear in a single cycle. Delay > 10 seconds/vehicle and ≤ 20 seconds/vehicle	Short traffic delays. Delay > 10 seconds/vehicle and ≤ 15 seconds/vehicle
C	Light congestion, occasional backups on critical approaches. Delay > 20 seconds/vehicle and ≤ 35 seconds/vehicle	Average traffic delays. Delay > 15 seconds/vehicle and ≤ 25 seconds/vehicle
D	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35 seconds/vehicle and ≤ 55 seconds/vehicle	Long traffic delays. Delay > 25 seconds/vehicle and ≤ 35 seconds/vehicle
E	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55 seconds/vehicle and ≤ 80 seconds/vehicle	Very long traffic delays, failure, extreme congestion. Delay > 35 seconds/vehicle and ≤ 50 seconds/vehicle
F	Total breakdown, stop-and-go operation. Delay > 80 seconds/vehicle	Intersection blocked by external causes. Delay > 50 seconds/vehicle
Source: Transportation Research Board 2000.		

Signalized Intersections. The LOS methodology used to analyze signalized intersections is presented in the Transportation Research Board's (TRB) *Highway Capacity Manual 2000* (Transportation Research Board 2000). At signalized intersections, the overall LOS for intersections is based on the average length of delays for all motorists at the intersections. The characteristics associated with the various LOS are presented in **Table 2**.

In the analysis of signalized intersections, the control of right-turn movements that are served with exclusive turn lanes are assumed to include overlapping right-turn control. With this type of control, right turns are allowed during the time the crossing approaches have a left-turn phase.

Unsignalized Intersections. The LOS methodology used to analyze unsignalized intersections (i.e., intersections controlled by stop signs) is presented in the *Highway Capacity Manual 2000*. **Table 2** presents the ranges of vehicle delay associated with each LOS for unsignalized intersections.

For two-way stop-sign controlled unsignalized intersections (or one-way stop-sign controlled "T" intersections), the *Highway Capacity Manual 2000* method considers gap acceptance and average delay of motorists on minor streets and in turn lanes to establish LOS. Level of Service is based on the length of the delay experienced by motorists on the worst single approach, rather than the intersection as a whole. It should be noted that overall intersection average LOS at unsignalized intersections is better, often much better, than LOS on the worst single approach.

For unsignalized all-way stop-sign controlled intersections, the *Highway Capacity Manual 2000* method analyzes each intersection approach independently. This method assumes all drivers are required to stop before proceeding into the intersection. In addition, for each approach, vehicles on the other approaches create conflicts.

Queuing. The lengths of vehicle queues were also analyzed for this traffic impact study. Methods presented in the *Highway Capacity Manual 2000* were used to analyze queuing. "Design queues" were estimated for each intersection approach. The calculation of vehicle queues are shown in the LOS calculation worksheets presented in the technical appendix. The results are summarized at the end of each set of LOS calculation worksheets.

Signal Warrants Procedures

Traffic signal warrants are a series of standards which provide guidelines for determining if a traffic signal is appropriate. Signal warrant analyses are typically conducted at intersections of uncontrolled major streets and stop sign-controlled minor streets. If one or more signal warrants are met, signalization of the intersection may be appropriate. However, a signal should not be installed if none of the warrants are met, since the installation of signals would increase delays on the previously-uncontrolled major street, resulting in an undesirable increase in overall vehicle delay at the intersection. Signalization may also increase the occurrence of particular types of accidents. Therefore, if signals are installed where signal warrants are not met, the detriment of increased accidents and overall delay may be greater than the benefit in traffic operating conditions on the single worst movement at the intersection. Signal warrants, then, provide an industry-standard basis for identifying when the adverse effect on the worst movement is substantial enough to warrant signalization.

For the traffic analysis conducted for this traffic impact study, available data are limited to a.m. and p.m. peak hour volumes. Thus, unsignalized intersections were evaluated using the Peak Hour Warrant (Warrant Number 3) from the California Department of Transportation document *Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2003 Edition, as amended for use in California)* (MUTCD) (California Department of Transportation 2006). This warrant was applied where the minor street experiences long delays in entering or crossing the major street for at least one hour of the day. The Peak Hour Warrant itself includes several components. Some of the components involve comparison of traffic volumes and vehicle delay to a series of standards. Another component involves comparison of traffic volumes to a nomograph.

Even if the Peak Hour Warrant is met, a more detailed signal warrant study is recommended before a signal is installed. The more detailed study should consider volumes during the eight highest hours of the day, volumes during the four highest hours of the day, pedestrian traffic, and accident histories.

Signal warrant analysis worksheets for all stop sign-controlled intersections are presented in the technical appendix.

Roadway Segment Level of Service Analysis Procedures

Roadway segment LOS was analyzed for this traffic impact study based on daily traffic volumes along roadways.

The roadway segment LOS method sets maximum daily traffic volume thresholds for each LOS designation. This roadway segment LOS analysis method sets separate thresholds for different types of facilities (i.e., arterials, major collectors, minor collectors, and local roadways), and different numbers of lanes. The thresholds used by the City of Orland are shown in **Table 3**.

Traffic volumes vary substantially during a 24-hour period. For example, traffic volumes during the p.m. peak hour are substantially higher than at midnight. Traffic congestion levels also vary substantially between different locations within roadway segments. For example, traffic congestion at intersections is almost always worse than at mid-block locations. As a result, analysis of daily LOS on roadway segments is an inherently generalized analysis approach. The daily roadway segment LOS analysis approximates LOS at the most congested locations, during the peak period of the day.

While the traffic volume thresholds shown in **Table 3** are generalized, they can be helpful for planning purposes to suggest the daily volume of traffic that might yield various peak hour LOS. It should be noted that the capacity of urban roadway segments is generally governed by the operation of adjacent intersections, and turn lanes and turn movements at these intersections can have a significant effect on LOS.

Table 3. Roadway Segment Level of Service Daily Traffic Volume Ranges

Facility Type	Number of Lanes	Range of Daily Traffic Volumes for Each Level of Service					
		Level of Service A	Level of Service B	Level of Service C	Level of Service D	Level of Service E	Level of Sevice F
Local	2	0 to 2,700	2,701 to 3,150	3,151 to 3,600	3,601 to 4,050	4,051 to 4,500	More than 4,500
Minor Collector	2	0 to 4,800	4,801 to 5,600	5,601 to 6,400	6,401 to 7,200	7,201 to 8,000	More than 8,000
Major Collector	2	0 to 7,620	7,621 to 8,890	8,891 to 10,160	10,161 to 11,430	11,431 to 12,700	More than 12,700
Arterial	2	0 to 9,000	9,001 to 10,500	10,501 to 12,000	12,001 to 13,500	13,501 to 15,000	More than 15,000
Arterial	4	0 to 18,000	18,001 to 21,000	21,001 to 24,000	24,001 to 27,000	27,001 to 30,000	More than 30,000

LEVEL OF SERVICE SIGNIFICANCE THRESHOLD

In this traffic impact study, the significance of the General Plan Update's impact on traffic operating conditions is based on a determination of whether resulting LOS is considered acceptable. The General Plan Update's impact on traffic conditions is considered significant if implementation of the Plan would result in LOS changing from levels considered acceptable to levels considered unacceptable, or if the Plan would substantially worsen already unacceptable LOS.

In the General Plan Update study area, two agencies are responsible for roadways: the City of Orland and Caltrans. As described below, these two agencies identify different LOS as being acceptable.

City of Orland

As noted earlier in the *Project Description* section of this traffic impact study, Policy 3.3.A of the *City of Orland General Plan Draft* (City of Orland 2008b) states:

> "Policy 3.3.A: Construct street and highway improvements to maintain an overall daily roadway Level of Service of "C" with an a.m. and p.m. peak-hour roadway and intersection Level of Service of "D" or better, unless other public health, safety, or welfare factors determine otherwise."

Therefore, LOS C or better will be considered acceptable for daily LOS on roadways for which the City of Orland is responsible (i.e., roadways which are not state routes). LOS D or worse will be considered unacceptable. This definition of acceptable LOS will be applied to the following roadway segments:

1. Almond Way, between 6th Street & 8th Street
2. Monterey Street, between 5th Street & 6th Street
3. 6th Street, between Trinity Street & Shasta Street
4. Tehama Street, between 5th Street & 6th Street
5. Shasta Street, between Melanie Circle & Woodward Avenue
6. Newville Road, west of County Road HH
7. County Road HH, south of Newville Road
8. Tehama Street, northeast of SR 32
9. 5th Street, north of Walker Street (SR 32)
10. 5th Street, south of Walker Street (SR 32)
11. 4th Street, north of Walker Street (SR 32)
12. 4th Street, south of Walker Street (SR 32)
13. 3rd Street, north of Walker Street (SR 32)
14. 3rd Street, south of Walker Street (SR 32)
15. 2nd Street, north of Walker Street (SR 32)
16. 2nd Street, south of Walker Street (SR 32)
17. A Street, north of Walker Street (SR 32)
18. A Street, south of Walker Street (SR 32)
19. East Street, north of Walker Street (SR 32)

20. East Street, south of Walker Street (SR 32)
21. Woodward Avenue, north of Walker Street (SR 32)
22. County Road M½, north of Walker Street (SR 32)
23. 4th Street, between Mill Street & Yolo Street
24. Yolo Street, west of Papst Avenue
25. County Road 16, west of County Road HH
26. Cortina Drive, north of South Street
27. 8th Street, north of South Street
28. 6th Street, north of South Street
29. 6th Street, south of South Street
30. Railroad Avenue, north of South Street
31. East Street, north of South Street
32. South Street, west of Papst Avenue
33. Papst Avenue, south of South Street
34. South Street (County Rd 200), west of County Road N
35. County Road N, north of South Street (County Road 200)

The numbering of the roadway segments listed above is consistent with the numbering shown on **Figure 7**.

LOS D or better will be considered acceptable for a.m. peak hour and p.m. peak hour LOS on intersections for which the City of Orland is responsible (i.e., intersections which are not on state routes). LOS E or worse will be considered unacceptable. This definition of acceptable LOS will be applied to the following intersections:

1. Newville Road & County Road HH
4. 6th Street & Swift Street
12. South Street & Cortina Drive
13. South Street & 6th Street
14. South Street & Papst Avenue

The numbering of the intersections listed above is consistent with the numbering shown on **Figure 6**.

Caltrans

SR 32 and I-5 are facilities under the jurisdiction of Caltrans. Acceptable LOS for these two facilities are defined in the *Transportation Concept Report State Route 32* (California Department of Transportation 2007), and the *Interstate 5 Transportation Concept Report* (California Department of Transportation 1997).

The Transportation Concept Report (TCR) for SR 32 defines "20-Year Concept LOS" as "The minimum allowable LOS over the next 20 years". The TCR for SR 32 specified the 20-Year Concept LOS for SR 32 as:

- LOS D between I-5 and 6th Street,
- LOS E between 6th Street and County Road N, and

- LOS D between County Road N and SR 45 (approximately 7 miles east of County Road N).

The TCR for I-5 specified LOS D as the 20-Year Concept LOS for I-5 in the vicinity of Orland.

Based on the Caltrans TCR for SR 32, LOS D or better will be considered acceptable for daily LOS on the following roadway segments. LOS E or worse will be considered unacceptable:

36. SR 32, east of I-5
39. SR 32 (Walker Street), east of County Road N

Based on the Caltrans TCR for SR 32, LOS E or better will be considered acceptable for daily LOS on the following roadway segments. LOS F or worse will be considered unacceptable:

37. SR 32 (Walker Street), east of 6th Street
38. SR 32 (Walker Street), east of Papst Avenue

The numbering of the roadway segments listed above is consistent with the numbering shown on **Figure 7**.

Based on the Caltrans TCR for SR 32 and I-5, LOS D or better will be considered acceptable for a.m. peak hour and p.m. peak hour LOS at the following intersections. LOS E or worse will be considered unacceptable:

2. Newville Road & I-5 Southbound Ramps
3. Newville Road (SR 32) & I-5 Northbound Ramps
5. Walker Street (SR 32) & 6th Street
9. SR 32 & County Road N
10. South Street & I-5 Southbound Ramps
11. South Street & I-5 Northbound Ramps

Based on the Caltrans TCR for SR 32, LOS E or better will be considered acceptable for a.m. peak hour and p.m. peak hour LOS at the following intersections. LOS F or worse will be considered unacceptable:

6. Walker Street (SR 32) & East Street
7. Walker Street (SR 32) & Papst Avenue
8. SR 32 & County Road MM (Future)

The numbering of the intersections listed above is consistent with the numbering shown on **Figure 6**.

EXISTING INTERSECTION TRAFFIC VOLUMES AND LEVELS OF SERVICE

The following is a description of existing traffic operating conditions at the study intersections.

Intersection Traffic Volumes

Peak hour turning movement traffic volume count data at the study intersections were collected for this traffic impact study. Traffic count data collection reports are presented in **Appendix A**.

The peak period intersection turning movement count data were collected on Tuesday October 30, 2007 and Wednesday October 31, 2007 during the 7:00 a.m. to 9:00 a.m. period, and the 4:00 p.m. to 6:00 p.m. period. Volumes during the highest one-hour period were used for this traffic impact study.

Figure 8 presents the existing lane configurations and existing a.m. peak hour and p.m. peak hour traffic volumes at the existing study intersections.

Intersection Levels of Service

Table 4 presents a summary of existing a.m. peak hour and p.m. peak hour LOS at the 13 existing study intersections. The worksheets presenting the calculation of LOS are presented in **Appendix B** and **Appendix C**.

Nine of the 13 existing study intersections operate at acceptable LOS A or B during both the a.m. peak hour and the p.m. peak hour. The intersection of Newville Road & County Road HH operates at LOS B during the a.m. peak hour, and LOS C during the p.m. peak hour. The following three intersections operate at LOS C during both the a.m. peak hour and the p.m. peak hour:

- Walker Street (SR 32) & 6th Street,
- Walker Street (SR 32) & Papst Avenue, and
- South Street & 6th Street.

All 13 of the existing study intersections operate at acceptable LOS C or better during both the a.m. peak hour and the p.m. peak hour under Existing conditions. No improvements are needed at the study intersections to achieve acceptable LOS.

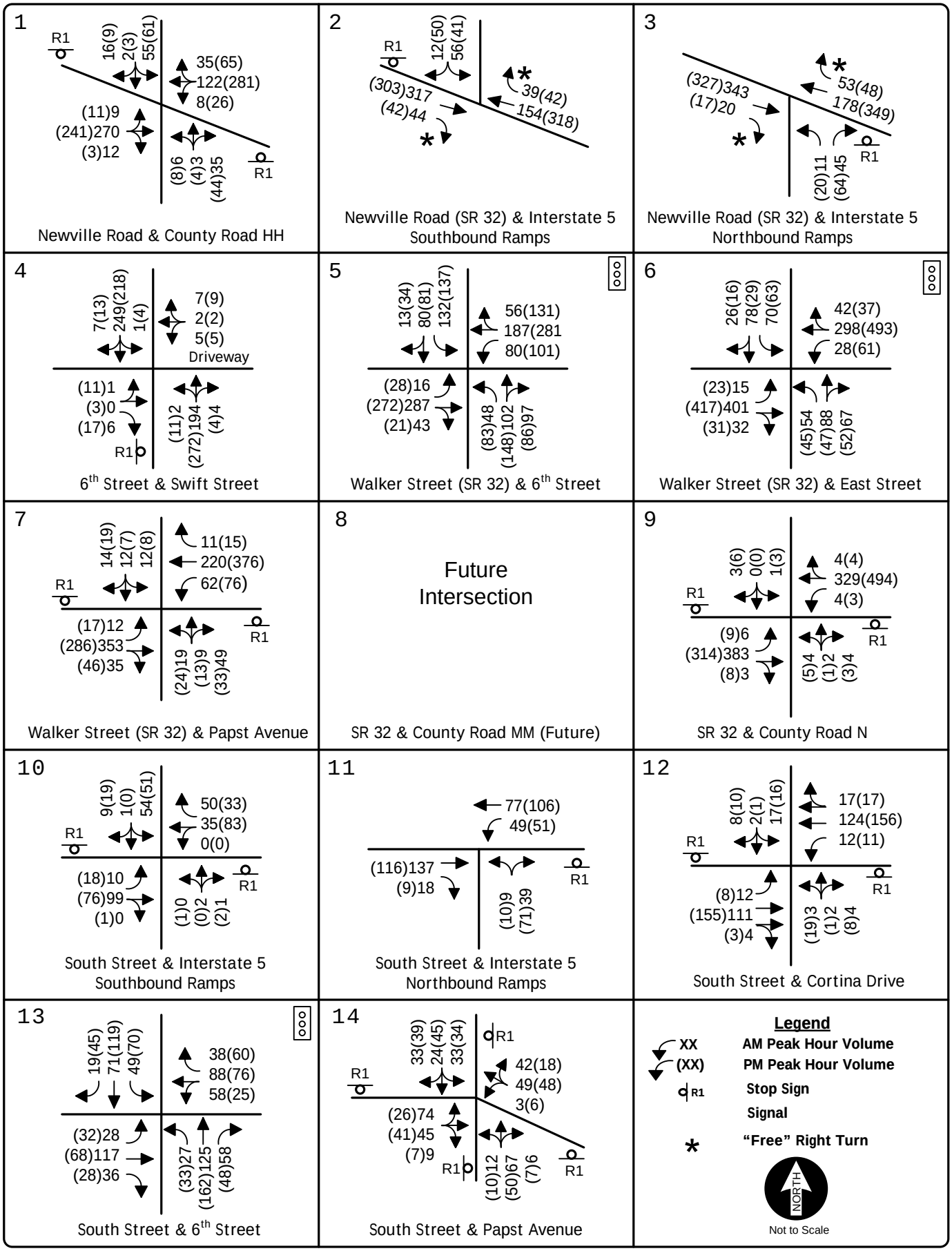
EXISTING ROADWAY SEGMENT TRAFFIC VOLUMES AND LEVELS OF SERVICE

The following is a description of existing traffic operating conditions on study roadway segments.

Roadway Segment Traffic Volumes

Daily traffic volume count data at study roadway segments were collected for 24-hour periods for this traffic impact study on Tuesday December 4, 2007; Wednesday December 5, 2007; and

Thursday December 6, 2007. Traffic count data collection reports are presented in **Appendix A**. In addition, the Caltrans internet website (http://www.dot.ca.gov/) was used as a source for existing traffic volumes for I-5 and SR 32.



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EXISTING CONDITIONS INTERSECTION TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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City of Orland General Plan
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figure 8

Table 4. Intersection Level of Service

Intersection	Inters Control	Accept LOS	Existing Conditions					2028 With General Plan Update				
			Signal Warrant Met?	AM Peak Hour		PM Peak Hour		Signal Warrant Met?	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
1. Newville Road & County Road HH	TWSC	D	No	13.8	B	19.3	C	Yes	18.4	C	244.3	F
2. Newville Road & I-5 Southbound Ramps	OWSC	D	No	8.3	A	8.2	A	Yes	15.7	C	253.9	F
3. Newville Rd (SR 32) & I-5 Northbound Ramps	OWSC	D	No	11.6	B	12.7	B	Yes	31.3	D	421.4	F
4. 6th Street & Swift Street	TWSC	D	No	11.2	B	11.9	B	No	11.2	B	11.9	B
5. Walker St (SR 32) & 6th Street	Signal	D	- -	29.7	C	31.2	C	- -	35.4	D	68.8	E
6. Walker St (SR 32) & East Street	Signal	E	- -	18.0	B	15.6	B	- -	21.9	C	27.6	C
7. Walker St (SR 32) & Papst Avenue	TWSC Signal*	E	No	17.1	C	20.5	C	- -	17.1	B	20.6	C
8. SR 32 & County Road MM (Future)	Signal*	E	- -	- -	- -	- -	- -	- -	11.0	B	24.8	C
9. SR 32 & County Road N	TWSC	D	No	9.0	A	9.8	A	Yes	541.5	F	Overfl	F
10. South Street & I-5 Southbound Ramps	TWSC	D	No	7.4	A	7.5	A	No	8.6	A	9.2	A
11. South Street & I-5 Northbound Ramps	OWSC	D	No	8.4	A	8.7	A	No	8.9	A	9.6	A
12. South Street & Cortina Drive	TWSC	D	No	10.3	B	10.6	B	No	12.0	B	14.5	B
13. South Street & 6th Street	Signal	D	- -	21.1	C	21.5	C	- -	19.9	B	21.6	C
14. South Street & Papst Avenue	AWSC	D	No	8.2	A	7.8	A	No	9.5	A	9.0	A

Notes: "LOS" = Level of service. "Inters Control" = Type of intersection control. "Accept LOS" = Acceptable level of service.
"Signal" = Signalized. "Signal*" = Signalized in the future. "Overfl" = Overflow - demand exceed capacity.
"TWSC" = Two-way stop-sign controlled. "OWSC" = One-way stop-sign controlled. "AWSC" = All-way stop-sign controlled.
Delay is expressed in seconds per vehicle. Worst movement delay is shown for unsignalized intersections.

Table 5 presents the existing daily traffic volumes for study roadway segments.

Roadway Segment Levels of Service

Table 5 presents a summary of existing LOS on the 39 existing study roadway segments. All of the roadway segments, except one, operate at LOS A. SR 32 (Walker Street) east of 6th Street operates at LOS C.

All of the roadway segments operate at acceptable LOS C or better. No improvements are needed on these roadway segments to achieve acceptable LOS.

Table 5. Daily Roadway Segment Volumes and Levels of Service (LOS)

	Roadway and Count Location	Func Class	Lanes	Capac	Accep LOS	Existing Conditions		2028 General Plan Update	
						Volume	LOS	Volume	LOS
1	Almond Way, between 6th Street & 8th Street	Local	2	4,500	C	1,025	A	1,025	A
2	Monterey Street, between 5th Street & 6th Street	Local	2	4,500	C	1,425	A	1,425	A
3	6th Street, between Trinity Street & Shasta Street	Arterial	2	15,000	C	6,369	A	6,369	A
4	Tehama Street, between 5th Street & 6th Street	Minor Coll	2	8,000	C	1,562	A	1,822	A
5	Shasta St, between Melanie Cir & Woodward Ave	Local	2	4,500	C	658	A	1,386	A
6	Newville Road, west of County Road HH	Major Coll	2	12,700	C	5,018	A	5,146	A
7	County Road HH, south of Newville Road	Minor Coll	2	8,000	C	945	A	4,407	A
8	Tehama Street, northeast of Swift Street (SR 32)	Minor Coll	2	8,000	C	1,602	A	1,832	A
9	Fifth Street, north of Walker Street (SR 32)	Local	2	4,500	C	756	A	772	A
10	Fifth Street, south of Walker Street (SR 32)	Local	2	4,500	C	1,427	A	1,451	A
11	Fourth Street, north of Walker Street (SR 32)	Local	2	4,500	C	1,210	A	1,246	A
12	Fourth Street, south of Walker Street (SR 32)	Minor Coll	2	8,000	C	2,141	A	2,207	A
13	Third Street, north of Walker Street (SR 32)	Local	2	4,500	C	1,079	A	1,151	A
14	Third Street, south of Walker Street (SR 32)	Local	2	4,500	C	1,240	A	1,298	A
15	Second Street, north of Walker Street (SR 32)	Local	2	4,500	C	474	A	528	A
16	Second Street, south of Walker Street (SR 32)	Local	2	4,500	C	725	A	797	A
17	A Street, north of Walker Street (SR 32)	Local	2	4,500	C	209	A	243	A
18	A Street, south of Walker Street (SR 32)	Local	2	4,500	C	406	A	436	A
19	East Street, north of Walker Street (SR 32)	Minor Coll	2	8,000	C	2,482	A	2,770	A
20	East Street, south of Walker Street (SR 32)	Minor Coll	2	8,000	C	3,072	A	3,270	A
21	Woodward Avenue, north of Walker St (SR 32)	Local	2	4,500	C	1,951	A	2,271	A
22	County Road M-1/2, north of Walker St (SR 32)	Minor Coll	2	8,000	C	963	A	1,639	A
23	Fourth Street, between Mill Street & Yolo Street	Minor Coll	2	8,000	C	1,350	A	1,442	A
24	Yolo Street, west of Papst Avenue	Local	2	4,500	C	1,045	A	1,222	A
25	County Road 16, west of County Road HH	Major Coll	2	12,700	C	1,160	A	1,726	A
26	Cortina Drive, north of South Street	Major Coll	2	12,700	C	723	A	1,691	A
27	8th Street, north of South Street	Minor Coll	2	8,000	C	1,039	A	1,521	A
28	6th Street, north of South Street	Arterial	2	15,000	C	5,372	A	5,536	A
29	6th Street, south of South Street	Arterial	2	15,000	C	4,612	A	4,612	A
30	Railroad Avenue, north of South Street	Minor Coll	2	8,000	C	1,983	A	2,043	A
31	East Street, north of South Street	Minor Coll	2	8,000	C	2,311	A	2,461	A
32	South Street, west of Papst Avenue	Major Coll	2	12,700	C	2,010	A	4,036	A
33	Papst Avenue, south of South Street	Major Coll	2	12,700	C	1,284	A	1,326	A
34	South St (County Rd 200), west of County Rd N	Major Coll	2	12,700	C	981	A	1,689	A
35	County Rd N, north of South St (County Rd 200)	Major Coll	2	12,700	C	206	A	874	A
36	SR 32 (Newville Road), east of I-5	Arterial	4	30,000	D	5,600	A	17,786	A
37	SR 32 (Walker Street), east of 6th Street	Arterial	2	15,000	E	10,800	C	22,650	F
38	SR 32 (Walker Street), east of Papst Avenue	Arterial	2	15,000	E	7,600	A	20,698	F
39	SR 32 (Walker Street), east of County Road N	Arterial	2	15,000	D	7,600	A	18,016	F

Notes: "Func Class" = Functional classification. "Coll" = Collector. "Capac" = Capacity. "Accep LOS" = Acceptable LOS.

YEAR 2028 WITH GENERAL PLAN UPDATE CONDITIONS

New land use development associated with the Updated General Plan would result in vehicle traffic in the Orland area, and potentially affect traffic operations at the study intersections and study roadway segments. The analysis of 2028 With General Plan Update conditions describes long-term traffic operations assuming implementation of the Updated General Plan. The analysis of this condition is used in this traffic impact study to assess the impacts of the Updated General Plan on traffic operations.

Development of land uses and roadway improvements associated with the Updated General Plan are assumed in the analysis of 2028 With General Plan Update conditions. The following is a description of methods used to conduct the analysis, and a description of the results of the analysis.

TRAFFIC VOLUME FORECASTS

Land use development associated with the Updated General Plan would generate new vehicle trips. The general approach used to forecast traffic volumes for the 2028 With General Plan Update condition addresses future trips associated with the land use development, and future trips with one or both ends of the trip outside of Orland.

Three categories of future trips in the Orland area were estimated for this traffic impact study:

- New trips that would have both ends in the Orland area are referred to as "internal trips".
- New trips that would have one end in the Orland area and one end outside of the Orland area are referred to as "external trips".
- New trips that would have both ends outside of the Orland area (i.e., trips passing through, but not stopping in, Orland) are referred to as "regional through trips".

Travel associated with these three categories of vehicle trips were added to existing traffic volumes to forecast future traffic volumes.

Overall Trip Generation

Estimates of vehicle trips that would be generated by land use development associated with the Updated General Plan were based on estimates of Plan-related changes in land use. Industry-standard trip generation rates were applied to the land use quantities to estimate the number of vehicle trips.

Estimates of changes in land use associated with the Updated General Plan were provided by the

City's planning consultant, Pacific Municipal Consultants (DeMartino pers. comm., and Friend pers. comm.). The following is a summary of the Plan-related land use developments assumed in this traffic impact study:

- 1,165 single family dwelling units,
- 233 multiple family dwelling units,
- 308,830 building square feet of retail commercial uses,
- 9.46 acres of office land use,
- 61.97 acres of light industrial / commercial use, and
- 23.31 acres of heavy industrial use.

The changes in land use development were geographically distributed to areas expected to experience growth during the next 20 years (Friend pers. comm.). The land use development was disaggregated to "traffic analysis zones" (TAZs). TAZs used in the analysis conducted for this traffic impact study are presented in **Figure 9**.

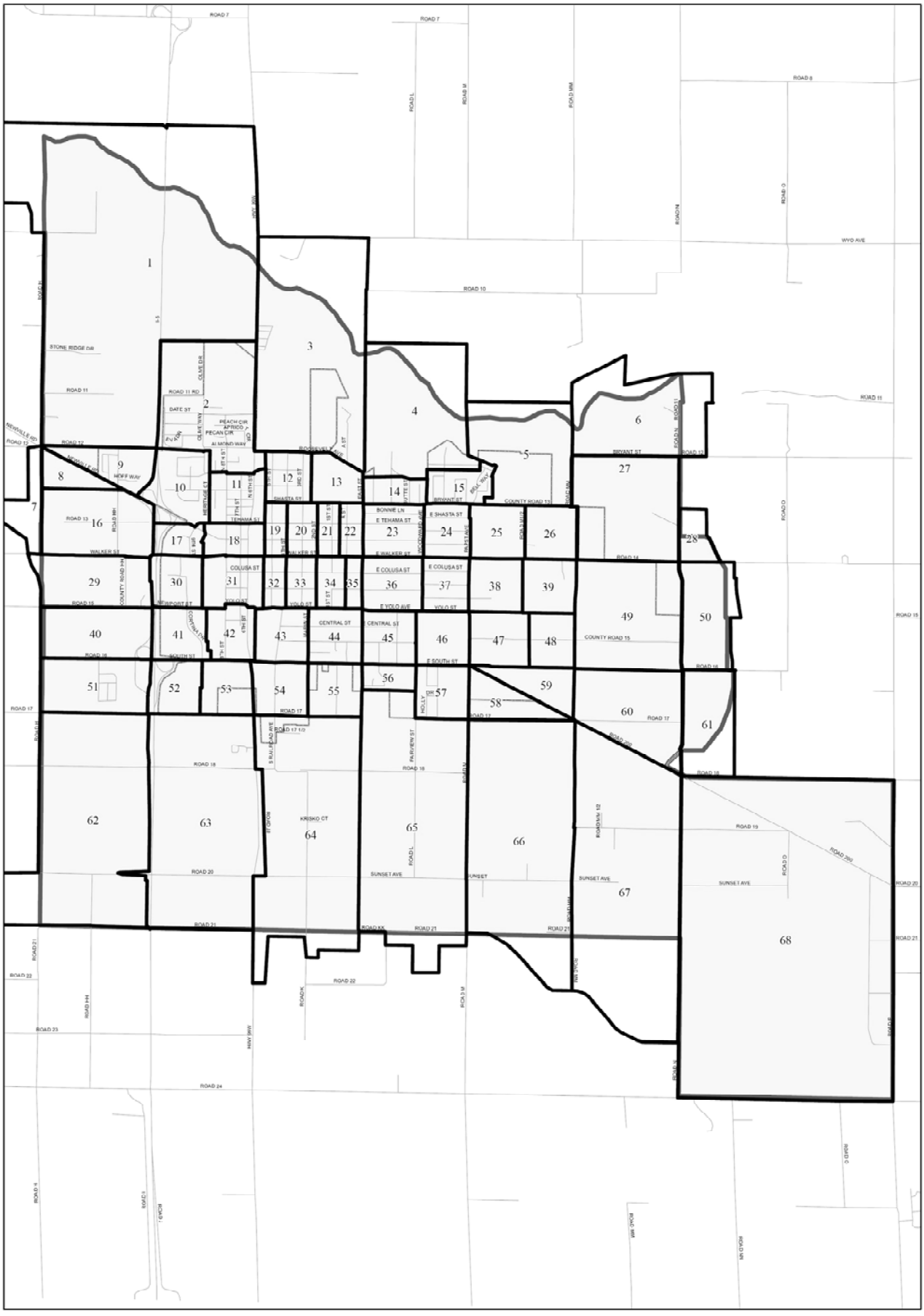
The number of vehicle trips that are expected to be generated by development associated with the Updated General Plan has been estimated using typical trip generation rates that have been developed based on the nature and size of project land uses. Data compiled by the Institute of Transportation Engineers (ITE) and presented in the publication *Trip Generation, 8th Edition* (Institute of Transportation Engineers 2008) is the source of trip generation rates used in this traffic impact study.

The trip generation rates used in this traffic impact study are presented in **Table 6**. The trip generation rates were applied to the amount of project-related land uses. The resulting trip generation estimates for the daily period, a.m. peak hour, and p.m. peak hour are presented in **Table 7**.

It should be noted that **Table 7** does not present estimates of total trips generated by development associated with the Updated General Plan. No totals are presented because a substantial portion of the trips generated by land uses in Orland are linked to other land uses in Orland. For example, a substantial portion of the trips generated by retail commercial land uses in Orland are the same trips generated by residential land uses in Orland. Simply summing all of the trip generation estimates presented in **Table 7** would result in a substantial amount of "double-counting".

Internal Trips

A majority of trips generated by future land use development in Orland would have both trip ends in Orland. This would include, for example, a shopping trip from a new residential dwelling unit in Orland to a new retail commercial building in Orland. Internal trips also include trips between two non-residential land uses. This would include, for example, someone leaving work at the end of the day, and stopping at a grocery store on the way home; one end of this trip is at the workplace, while the second end of the trip is at the grocery store.



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TRAFFIC ANALYSIS ZONES

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City of Orland General Plan
Update Traffic Impact Study

figure 9

Table 6. Orland General Plan Update Trip Generation Rates

Land Use Category and ITE Land Use Code	Independent Variable	Vehicle Trip Rates						
			AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
Single Family Housing - 210	Dwelling Units	9.57	0.19	0.56	0.75	0.64	0.37	1.01
Multiple-Family Housing - 220	Dwelling Units	6.65	0.10	0.41	0.51	0.40	0.22	0.62
Retail Commercial - 820	1,000 Sq. Ft	42.94	0.61	0.39	1.00	1.83	1.90	3.73
Office - 750	Acres	195.11	23.60	2.05	25.65	4.24	24.04	28.28
Light Industrial - 110	Acres	51.80	6.23	1.28	7.51	1.60	5.66	7.26
Heavy Industrial - 120	Acres	6.75	1.64	0.34	1.98	0.48	1.68	2.16

Notes: Totals may not equal the sum of the components due to rounding.
Trip generation rates are from Institute of Transportation Engineers (ITE) *Trip Generation* 8th edition.
Inbound and outbound percentages are not available in *Trip Generation* for Heavy Industrial, and are based on percentages for Light Industrial.

Table 7. Orland General Plan Update 2028 Trip Generation Estimates

Land Use Category and ITE Land Use Code	Amount of Land Use	Vehicle Trips						
			AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
Single Family Housing - 210	1,165 Dwelling Units	11,149	221	652	874	746	431	1,177
Multiple-Family Housing - 220	233 Dwelling Units	1,549	23	96	119	93	51	144
Retail Commercial - 820	308.83 1,000 Sq. Ft	13,261	188	120	309	565	587	1,152
Office - 750	9.46 Acres	1,845	223	19	243	40	227	267
Light Industrial - 110	61.97 Acres	3,210	386	79	465	99	351	450
Heavy Industrial - 120	23.312 Acres	157	38	8	46	11	39	50

Notes: Totals may not equal the sum of the components due to rounding.
No trip generation is assumed for Open Space/Resource Conservation uses or for Public Facility uses.
Source of land use quantities: Friend pers. comm.
To avoid implied double-counting, no total is shown for the sum of all uses. Most of the trips shown for residential uses are the same trips also shown for non-residential uses. For example, a single trip to the grocery store is shown as a trip for "Single-Family Housing" and is also shown as a trip for "Retail Commercial".

Internal trips were estimated by matching trips made by residential land uses, employment-generating land uses, retail commercial land uses, and schools.

External Trips

A portion of trips generated by future land use development in Orland would have one end in Orland, and the second end outside or Orland. This would include, for example, a commute trip from a new residential dwelling unit in Orland to a place of employment located in Chico. For this traffic impact study, external trips are assumed to leave the Orland area using:

- I-5 to the north,
- Newville Road to the west,
- SR 32 to the east, and
- I-5 to the south.

Regional Through Trips

Some of the increase in traffic volumes in Orland would also result from an increase in regional background travel. These regional through trips would use roadways in Orland, but would not stop in Orland.

The increase in regional background travel would not be associated with land uses in Orland, but would result in an increase in traffic volumes on SR 32 and I-5. This increase in travel would be expected to occur regardless of the level of development assumed within the plan area.

Travel forecasts used in this traffic impact study include increases in regional through trips. The amounts of increases assumed in this traffic impact study are consistent with the *Transportation Concept Report State Route 32* (California Department of Transportation 2007).

Trip Distribution

Trips resulting from development associated with the Updated General Plan, and regional through trips were geographically distributed over the study area roadway network. The geographical distribution of trips is based on the relative attractiveness or utility of possible destinations. Factors affecting trip distribution include:

- the location of destinations for the added trips,
- the magnitude of land uses that would attract the added trips, and
- the quality of access to the destinations via the roadway network.

The percentages of geographic distribution varied according to the amount, type, and location of land uses generating the added vehicle trips. As a result, no single set of percentages were used, and no single set of percentages can be presented in this traffic impact study. However, as an example, the following are the categories of land uses used as destinations for trips generated by residential land uses:

- schools (elementary school, middle school, high school, and community college)

- employment centers,
- retail commercial land uses,
- external destinations (outside of the Orland area).

The analysis conducted for this traffic impact study assumed continued use of existing schools in Orland. No new schools were assumed (Friend pers. comm.). A portion of vehicle trips from new residential land uses were distributed to these existing schools. Different distribution percentages were applied for different periods of the day. The percentages are presented in **Table 8**.

As noted earlier, this traffic impact study assumed a portion of the trips generated by new land use development in Orland would be external trips (i.e., trips with one end outside of the Orland area). The percentages presented in **Table 8** were applied to new residential land uses.

Roadway Improvements

Roadway improvements assumed in the analysis of 2028 With General Plan Update conditions were identified in consultation with the City Engineer (Friend pers. comm.). No new major roadways were assumed in the analysis. However, the analysis did assume the following roadway improvements, which would directly support anticipated land use development:

- extension of Stony Creek Drive to the west,
- extension of Stony Creek Drive to Bryant Street,
- extension of County Road MM (Hambright Avenue) between Bryant Street and SR 32,
- extension of County Road MM (Hambright Avenue) between SR 32 and County Road 15½,
- widening of County Road 15½ between Papst Avenue and County Road N,
- signalization of the intersection of SR 32 & Papst Avenue,
- signalization of the intersection of SR 32 & Tehama Street (9th Street), and
- signalization of the intersection of SR 32 & County Road MM (Hambright Avenue).

Signalization of the intersection of SR 32 & Papst Avenue would be consistent with Program 3.3.C.1 of the General Plan Update (City of Orland 2008b).

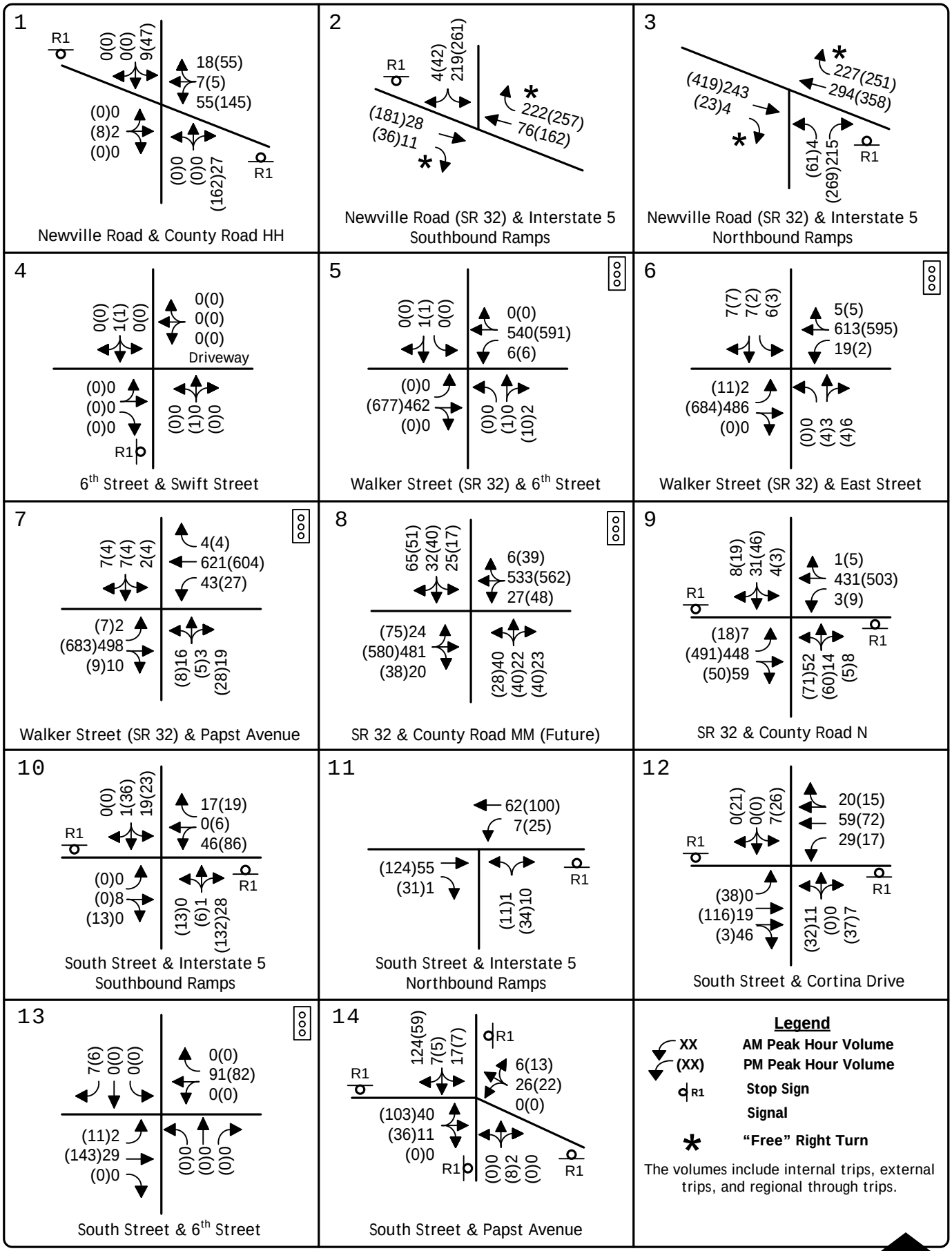
Trip Assignment

Traffic that would be generated by development associated with the Updated General Plan and regional through trips was added to existing traffic volumes. **Figure 10** presents the traffic volumes added at each study intersection in the a.m. peak hour and p.m. peak hour. **Figure 11** presents the resulting 2028 With General Plan Update conditions traffic volumes anticipated for each study intersection in the peak hours. **Table 5** presents the resulting 2028 With General Plan Update conditions daily traffic volumes anticipated for each study roadway segment.

Table 8. Trip Distribution Percentages

Destination	Time Period		
	AM Peak Hour	PM Peak Hour	Daily
School Trips			
Mill Street School Traffic Analysis Zone 34	6%	0%	1.5%
Fairview School Traffic Analysis Zone 56	6%	0%	1.5%
Price Middle School Traffic Analysis Zone 43	6%	0%	1.5%
Orland High School Traffic Analysis Zone 13	8%	0%	2.0%
Butte College Traffic Analysis Zone 25	2%	0%	0.5%
External Trips			
North on I-5	2%	2%	2%
West on Newville Road	1%	1%	1%
East on SR 32	5%	5%	5%
South on I-5	2%	2%	2%

Note: Other internal trips were distributed based on the location of, magnitude of, and access to, trip destinations.



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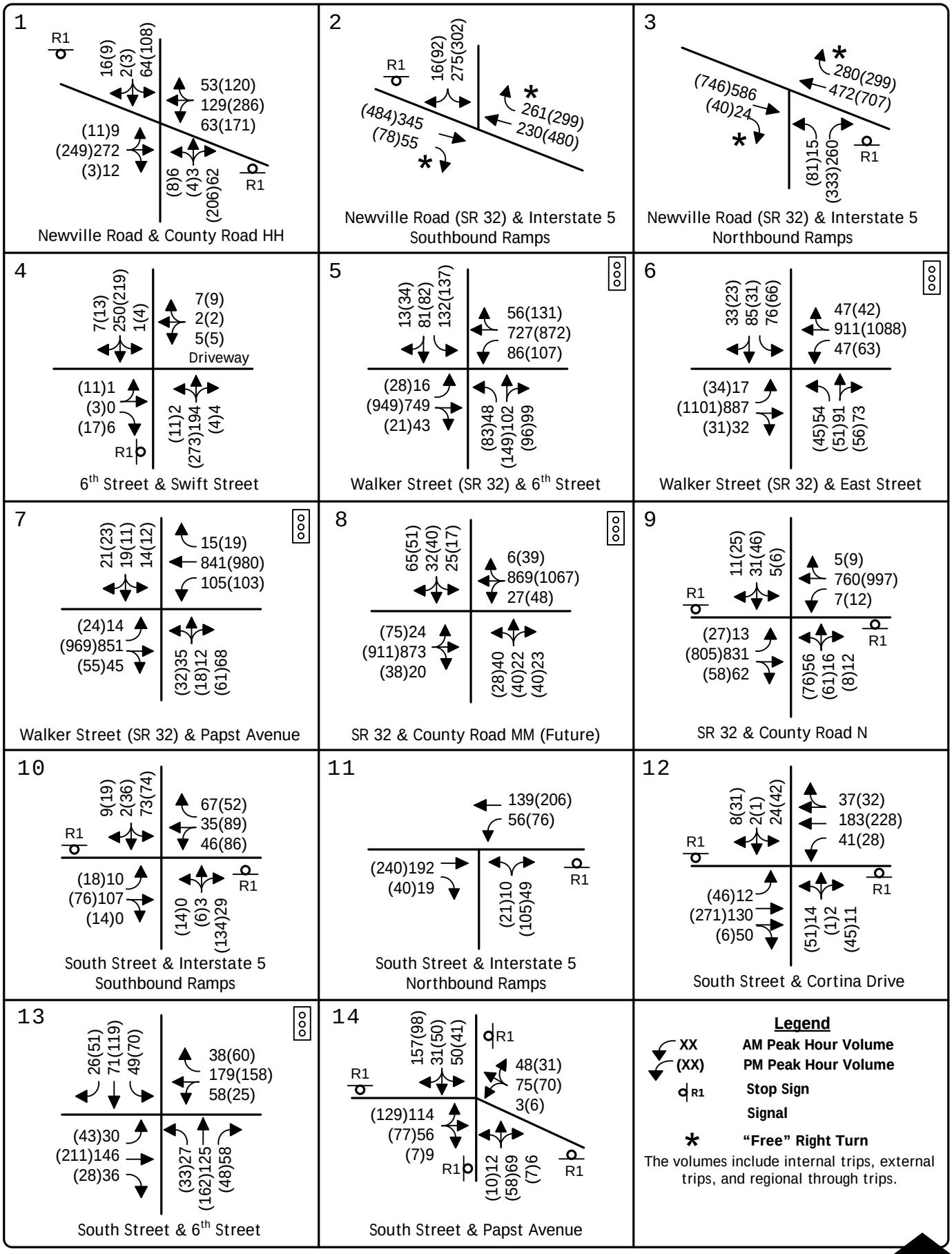
FUTURE ADDED TRAFFIC VOLUMES

NORTH
N.T.S.

5480-27 5/17/2010

City of Orland General Plan
Update Traffic Impact Study

figure 10



KD Anderson & Associates, Inc.
Transportation Engineers

2028 WITH GENERAL PLAN CONDITIONS TRAFFIC VOLUMES AND LANE CONFIGURATIONS

NORTH
N.T.S.

5480-27 5/17/2010

City of Orland General Plan
Update Traffic Impact Study

figure 11

INTERSECTION LEVELS OF SERVICE

Table 4 presents the a.m. peak hour and p.m. peak hour LOS at each study intersection under 2028 With General Plan Update conditions. The worksheets presenting the calculation of LOS are presented in **Appendix D** and **Appendix E.**

Traffic volumes under 2028 With General Plan Update conditions would be generally higher than under Existing conditions and, as a result, vehicle delay at study intersections under 2028 With General Plan Update conditions would be higher than under Existing conditions.

Under 2028 With General Plan Update conditions, LOS at nine of the 14 study intersections would operate at acceptable LOS during both the a.m. peak hour and the p.m. peak hour. No improvements are needed at these nine intersections to achieve acceptable LOS.

The following describes the five study intersections that would operate at unacceptable LOS under 2028 With General Plan Update, and mitigation measures that would be needed to improve LOS to acceptable levels. **Table 9** presents the a.m. peak hour and p.m. peak hour LOS at these five study intersections with implementation of the mitigation measures. The worksheets presenting the calculation of LOS with mitigation measures are presented in **Appendix F** and **Appendix G**.

#1 – Newville Road & County Road HH

Under 2028 With General Plan Update, this intersection would operate at LOS C with 18.4 seconds of delay during the a.m. peak hour, and LOS F with 244.3 seconds of delay during the p.m. peak hour. LOS F is considered unacceptable. Based on criteria presented in the *Level of Service Significance Threshold* section of this traffic impact study, this impact is considered significant. This intersection would meet peak hour signal warrants. The following mitigation measures would be required to achieve acceptable LOS and reduce the impact to a less-than-significant level:

- Signalize the intersection.
- No additional lanes are necessary. However, the intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks).

Signalization of the intersection of Newville Road & County Road HH would be consistent with Program 3.3.C.1 of the General Plan Update (City of Orland 2008b).

A summary of LOS with mitigation measures is presented in **Table 9**. With these mitigation measures, this intersection would operate at LOS B with 11.4 seconds of delay during the a.m. peak hour and LOS B with 17.0 seconds of delay during the p.m. peak hour. These LOS are considered acceptable.

Table 9. Intersection Level of Service - Mitigated

Intersection	Inters Control	Accept LOS	2028 With General Plan Update With Mitigation Measures			
			AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1. Newville Road & County Road HH	Signal	D	11.4	B	17.0	B
2. Newville Road & I-5 Southbound Ramps	Signal	D	17.1	B	20.1	C
3. Newville Rd (SR 32) & I-5 Northbound Ramps	Signal	D	15.8	B	24.3	C
5. Walker St (SR 32) & 6th Street	Signal	D	27.0	C	47.8	D
9. SR 32 & County Road N	Signal	D	9.9	A	18.8	B

Notes: "LOS" = Level of service. "Inters Control" = Type of intersection control.
"Accept LOS" = Acceptable level of service. "Signal" = Signalized.
Delay is expressed in seconds per vehicle.

#2 – Newville Road & I-5 Southbound Ramps

Under 2028 With General Plan Update, this intersection would operate at LOS C with 15.7 seconds of delay during the a.m. peak hour, and LOS F with 253.9 seconds of delay during the p.m. peak hour. LOS F is considered unacceptable. Based on criteria presented in the *Level of Service Significance Threshold* section of this traffic impact study, this impact is considered significant. This intersection would meet peak hour signal warrants. The following mitigation measures would be required to achieve acceptable LOS and reduce the impact to a less-than-significant level:

- Signalize the intersection.
- No additional lanes are necessary. However, the intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks).

Signalization of the intersection of Newville Road & I-5 Southbound Ramps would be consistent with Program 3.3.C.1 of the General Plan Update (City of Orland 2008b).

A summary of LOS with mitigation measures is presented in **Table 9**. With these mitigation measures, this intersection would operate at LOS B with 17.1 seconds of delay during the a.m. peak hour and LOS C with 20.1 seconds of delay during the p.m. peak hour. These LOS are considered acceptable.

#3 – Newville Road & I-5 Northbound Ramps

Under 2028 With General Plan Update, this intersection would operate at LOS D with 31.3 seconds of delay during the a.m. peak hour, and LOS F with 421.4 seconds of delay during the p.m. peak hour. LOS F is considered unacceptable. Based on criteria presented in the *Level of Service Significance Threshold* section of this traffic impact study, this impact is considered significant. This intersection would meet peak hour signal warrants. The following mitigation measures would be required to achieve acceptable LOS and reduce the impact to a less-than-significant level:

- Signalize the intersection.
- No additional lanes are necessary. However, the intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks).

Signalization of the intersection of Newville Road & I-5 Northbound Ramps would be consistent with Program 3.3.C.1 of the General Plan Update (City of Orland 2008b).

A summary of LOS with mitigation measures is presented in **Table 9**. With these mitigation measures, this intersection would operate at LOS B with 15.8 seconds of delay during the a.m. peak hour and LOS C with 24.3 seconds of delay during the p.m. peak hour. These LOS are considered acceptable.

#5 – Walker Street (SR 32) & 6th Street

Under 2028 With General Plan Update, this intersection would operate at LOS D with 35.4 seconds of delay during the a.m. peak hour, and LOS E with 68.8 seconds of delay during the p.m. peak hour. LOS E is considered unacceptable. Based on criteria presented in the *Level of Service Significance Threshold* section of this traffic impact study, this impact is considered significant. The following mitigation measure would be required to achieve acceptable LOS and reduce the impact to a less-than-significant level:

- Split the northbound combined through/right-turn lane into an exclusive northbound through lane, and an exclusive northbound-to-eastbound right-turn lane.

A summary of LOS with mitigation measures is presented in **Table 9**. With this mitigation measure, this intersection would operate at LOS C with 27.0 seconds of delay during the a.m. peak hour and LOS D with 47.8 seconds of delay during the p.m. peak hour. These LOS are considered acceptable.

#9 – SR 32 & County Road N

Under 2028 With General Plan Update, this intersection would operate at LOS F with 541.5 seconds of delay during the a.m. peak hour, and LOS F with overflow conditions during the p.m. peak hour. LOS F is considered unacceptable. Based on criteria presented in the *Level of Service Significance Threshold* section of this traffic impact study, this impact is considered significant. This intersection would meet peak hour signal warrants. The following mitigation measures would be required to achieve acceptable LOS and reduce the impact to a less-than-significant level:

- Signalize the intersection.

- No additional lanes are necessary. However, the intersection should be improved to modern design standards (e.g., curbs, gutter, and sidewalks).

A summary of LOS with mitigation measures is presented in **Table 9**. With these mitigation measures, this intersection would operate at LOS A with 9.9 seconds of delay during the a.m. peak hour and LOS B with 18.8 seconds of delay during the p.m. peak hour. These LOS are considered acceptable.

ROADWAY SEGMENT LEVELS OF SERVICE

Table 5 presents a summary of LOS on the 39 study roadway segments under 2028 With General Plan Update conditions. Thirty-six of the roadway segments would operate at acceptable LOS. No improvements are needed on these 36 roadway segments to achieve acceptable LOS. The following three roadway segments would operate at unacceptable LOS:

- SR 32 (Walker Street), east of 6th Street;

- SR 32 (Walker Street), east of Papst Avenue; and
- SR 32 (Walker Street), east of County Road N.

Traffic volumes on these three roadway segments would increase substantially from existing conditions to 2028 With General Plan Update conditions. The large majority of the increase in traffic volumes would be due to an increase in regional through trips – traffic not related to land use development in Orland. If, hypothetically, there was no future land use development in Orland, these three roadway segments would operate at unacceptable LOS in the future because of the increase in regional through trips. Conversely, if there was no future increase in regional through trips, these three roadway segments would operate at acceptable LOS in the future even with future land use development in Orland.

As noted earlier in the *Roadway Segment Level of Service Analysis Procedures* section of this traffic impact study, the daily roadway segment LOS analysis approximates LOS at the most congested intersections, during the peak period of the day. While roadway segment LOS analysis is inherently generalized, intersection LOS analysis is more detailed and specific.

The unacceptable LOS at the three roadway segments listed above would be consistent with peak hour LOS at intersections along the roadway segments, if the intersections remained in their current unimproved condition. Without future improvements and mitigation measures, the following intersections would operate at unacceptable LOS under 2028 With General Plan Update conditions:

- Walker Street (SR 32) & 6th Street,
- Walker Street (SR 32) & Papst Avenue, and
- SR 32 & County Road N.

Based on criteria presented in the *Level of Service Significance Threshold* section of this traffic impact study, without the intersection improvements and mitigation measures, the impact on roadway segment LOS would be considered significant.

Intersection mitigation measures described above in the *Intersection Levels of Service* section of this traffic impact study, the planned signalization of the intersection of Walker Street (SR 32) & Papst Avenue, and planned signalization of the intersection of SR 32 & County Road MM would result in acceptable traffic operating conditions in this portion of Walker Street (SR 32). Because these mitigation measures and planned improvements would result in acceptable traffic operating conditions, the impact on roadway segment LOS would be reduced to a less-than-significant level.

PUBLIC TRANSPORTATION

Implementation of the General Plan Update would result in an increase in demand for public transportation services. Currently, there is limited direct public transportation service to the City. The frequency and proximity of future public transportation service is not known at this time.

The following Goal 3.6 of the General Plan Update, and its associated policies and programs,

address public transportation:

"GOAL 3.6: ENCOURAGE TRANSPORTATION ALTERNATIVES TO THE AUTOMOBILE.

> **"Policy 3.6.A:** Planning and development of Arterial and Major Collector streets shall include design features that can be used as public transit stops.

"Program 3.6.A.1: Arterial and Major Collector streets shall be designed to provide for bus pull-outs and transit stops at locations determined by the City and transit agency to be appropriate.

> **"Policy 3.6.B:** Encourage the use of car-pooling, vanpooling and flexible employment hours.
>
> > **"Program 3.5.B.1:** New development shall consider Transportation System Management and Transportation Demand Management as strategies for the mitigation of traffic and parking congestion. Public transit, traffic management, ride sharing and parking management are to be used to the greatest extent practical.
>
> **"Policy 3.6.C:** Coordinate with regional transit planners to determine the feasibility of developing and/or improving commuter bus service.
>
> **"Policy 3.6.D:** The City shall continue to support the continuation of transportation programs provided by social service agencies, particularly those serving persons with disabilities, or other limitations. Coordination of other social service transit providers including schools, health services, and others should be recognized in the planning of circulation system."

Implementation of Goal 3.6, and associated policies and programs would result in improvements to public transportation services to the Orland area. This impact is considered to be less-than-significant. No mitigation measures would be required.

BICYCLE AND PEDESTRIAN FACILITIES

Implementation of the General Plan Update would result in an increase in demand for bicycle and pedestrian facilities. The relatively mild climate, flat terrain, and modest size of the City provide opportunities for bicycling and walking as alternative forms of transportation.

The following Goal 3.7 and Goal 3.8 of the General Plan Update, and its associated policies and programs, address bicycle and pedestrian facilities:

"GOAL 3.7: THE CITY SHALL ENCOURAGE THE ESTABLISHMENT OF A NON-VEHICULAR CIRCULATION SYSTEM LINKING IMPORTANT PUBLIC PLACES WITHIN THE COMMUNITY.

"Policy 3.7.A: The City shall support the concept of an east/west multi-modal circulation link in north Orland.

"Policy 3.7.B: The City should utilize canal rights-of-way and drainage facilities for multi-use purposes, to include trails.

"Policy 3.7.C: The city shall prioritize the creation of linkages between public places (schools, parks, government buildings) to facilitate the movement of people through the City.

"Policy 3.7.D: The City shall prioritize the establishment of a pedestrian crossing of Highway 32 linking residences to parks.

"GOAL 3.8: PROMOTE MAXIMUM OPPORTUNITIES FOR PEDESTRIAN TRAFFIC THROUGHOUT THE CITY BY CONTINUING TO DEVELOP AND MAINTAIN A SAFE SIDEWALK SYSTEM.

"Policy 3.8.A: Adequate sidewalks shall be planned and constructed in connection with street construction work in the City. Where existing roads may require additional right-of-way to accommodate full improvements including sidewalks, and where it is impractical to acquire sufficient right-of-way, the vehicle travelway will be the first priority.

"Policy 3.8.B: Subdivision layouts shall include designs that promote pedestrian circulation in a safe and efficient manner.

"Program 3.8.B.1: Implement street standards that include sidewalk or walkways on both sides of streets, where appropriate.

"Policy 3.8.C: Bicycle lanes should be established where feasible along Major and Minor Collectors in newly developing areas. A bicycle route system should be identified which serves the existing developed City. Where bicycle lanes are proposed they should be considered a shared facility with vehicular traffic on the street.

"Policy 3.8.D: Encourage existing facilities, and require future facilities to conform to the American Disabilities Act provisions requiring access for disabled persons.

"Policy 3.8.E: The City shall maximize the use of rights-of-way, easements, and utility corridors through the installation of pedestrian and bicycle facilities."

Implementation of Goal 3.7 and Goal 3.8, and associated policies and programs would result in improvements to bicycle and pedestrian facilities in the Orland area. This impact is considered to be less-than-significant. No mitigation measures would be required.

RIGHT OF WAY PRESERVATION

Implementation of the General Plan Update would result in an increase in demand for roadway capacity. The General Plan Update includes a proposed circulation system, presented in **Figure 3**, to meet future demands. An important component of implementing the proposed circulation system is the preservation of land right-of-way in transportation corridors.

The following excerpts from Goal 3.2 of the General Plan Update, and its associated policies and programs, address right-of-way preservation:

"GOAL 3.2: ESTABLISH A SYSTEM OF SAFE AND EFFICIENT LOCAL, COLLECTOR, AND ARTERIAL ROADS TO REDUCE TRAVEL TIME AND IMPROVE TRAFFIC SAFETY THAT IS CONSISTENT WITH THE LAND USE PATTERNS OF THE CITY.

> **"Policy 3.2.A:** Locations of Major Collector street intersections with Arterial streets shall be fixed by the Circulation Plan map. Roadway dedications and development design shall implement the Circulation Plan. Location of Major Collector alignments in newly developing areas shall be logical and efficient, and established early in the development process to aid in the consistent design of subdivisions. No development will be allowed to be constructed which would conflict with future planned streets or setbacks.
>
> > **"Program 3.2.A.1:** The City will encourage property owners in newly developing areas to prepare Master Plans or Specific Plans that identify future major street alignments. The City will participate in the design of street alignments in advance of development to ensure consistent and logical design of the circulation system.
> >
> > **"Program 3.2.A.2:** The City will continue to work with Glenn County to coordinate new street alignments and improvements.
> >
> > **"Program 3.2.A.3:** The City may pursue the reservation of right-of-way and define specific development standards and requirements through the preparation and adoption of Roadway Plan Lines."
>
> **"Policy 3.2.C:** All streets, roads and easements within the City and Orland Planning Area shall be offered for dedication to the City and all improvements and right-of-ways shall be developed to City standards.
>
> > **"Program 3.2.C.1:** Ultimate right-of-way shall be dedicated and/or developed to the appropriate width when a zone change to a greater density or intensity, division of property, or when new development or major remodeling occurs.
>
> **"Policy 3.2.D:** On developed streets, where the existing right-of-way does not meet the current standards, the City will adopt programs to acquire the ultimate right-of-way where practical and determined to be necessary or desirable. Funding mechanisms may include the use of traffic impact fee moneys.
>
> > **"Program 3.2.D.1:** The City will include the acquisition of right-of-way, and the construction or reconstruction of streets in its Capital Improvement Program. The

City reserves the right to reduce the ultimate right of-way to avoid existing development for the construction of a travelway that generally meets the street classification standards, by reducing the area provided for landscaping, utilities, parking and other non-travel use.

"Program 3.2.D.2: Additional right-of-way on the east side of Papst Avenue, 400 feet south of Bryant Street, and at Papst and Highway 32, will be acquired for City Standard road widths. At Papst and Yolo Streets, right-of-way will be acquired and intersection will be re-aligned to improve the north/south curve."

"Policy 3.2.H: To help ensure that adequate and safe travelways can be developed through existing developed areas of the City, right-of-way standards for each classification may be modified."

Implementation of Goal 3.2, and associated policies and programs would result in the preservation of right-of-way for the proposed circulation system in the Orland area. This impact is considered to be less-than-significant. No mitigation measures would be required.

POST-YEAR 2028 WITH GENERAL PLAN UPDATE CONDITIONS

Consistent with the 20-year planning horizon for *City of Orland General Plan Draft* (City of Orland 2008b), the previous section of this traffic impact study, *Year 2028 With General Plan Update Conditions*, presents an assessment of potential circulation impacts in the year 2028. However, as noted earlier in this traffic impact study, development through the year 2028 would not result in full build-out of the land use diagram for the Orland General Plan Update. The land use diagram provides for planning of growth in the Orland area beyond the year 2028.

Specific land use development forecasts are not available for the period beyond the 20-year planning horizon for the General Plan Update. Therefore, a detailed quantitative analysis of traffic operating conditions beyond the 20-year period has not been conducted. The following presents a screening-level assessment of potential circulation impacts beyond the 20-year planning horizon.

STATE ROUTE 32

Beyond the 20-year planning horizon for the General Plan Update, traffic volumes on SR 32 would continue to increase. The increase would result from both land use development in Orland, and from regional through trips unrelated to development in Orland.

Caltrans is the agency responsible for SR 32. The *Transportation Concept Report State Route 32* (California Department of Transportation 2007) is Caltrans' long range planning document for SR 32. Page 5 of this document presents a description of improvements recommended by Caltrans for the portion of SR 32 in the Orland area. The following are excerpts from this document:

> "Both the City of Orland and Glenn County have indicated the need for future expansion of SR 32 to four lanes. Due to existing right of way restrictions west of Papst Avenue, the expansion to four lanes will be limited to the portion of SR 32 between Papst Avenue and County Road N. To lessen the environmental and aesthetic impacts that a road widening can have on a main street highway, it is suggested that curbs, gutters, sidewalks and landscaping be included in the design of future capacity improvements."

The *Transportation Concept Report State Route 32* refers to "segments" of SR 32:

- Segment 1 is from I-5 to 6th Street,
- Segment 2 is from 6th Street to County Road N, and
- Segment 3 is from County Road N to SR 45 (east of Orland).

The *Transportation Concept Report State Route 32* presents the following description of an "Orland Truck Bypass":

> "Glenn County has submitted a $1.3 Million dollar 2006 STIP augmentation

candidate to widen and rehabilitate County Road 27 from I-5 to County Road P, continuing north on County Road P to SR 32. This project is planned to ultimately act as a truck bypass of Orland (Segments 1 and 2) connecting I-5 to Segment 3."

The *Transportation Concept Report State Route 32* presents the following descriptions of "Conceptual Improvements" with estimated construction costs in thousands of dollars, and estimated construction completion year:

- "Expansion of east/west parallel facilities, to be integrated in planned development (cost to be identified; 2010)
- "Widen to four lanes with left-turn lane channelization from Papst Avenue to County Road N.($2,678; 2015/2020)
- "Traffic signals SR 32 at Papst, Hambright Road, Orland Park, and County Rd N, with intersection improvements when warranted (Locally funded—$1,000; 2007/2010)
- "Curbs, gutters and sidewalks E. of East Street should be considered in conjunction with planned development (to be part of development)"

The long-term post-2028 increase in traffic volumes on SR 32 would adversely affect traffic operations. This is considered a potentially significant impact. Implementing the improvements recommended by Caltrans in the *Transportation Concept Report State Route 32* would reduce this impact to a less-than-significant level.

COUNTY ROAD HH

Extending County Road HH to the south from its current terminus at County Road 15 to County Road 16 is included in the General Plan Update. Both widening and extending County Road HH would be needed to support land use development in this area on the west side of I-5.

It is recommended that the alignment of the County Road HH traverse to the southwest from the current terminus at County Road 15 to provide a minimum of 500 feet of spacing between the existing intersection of South Street (County Road 16) & the I-5 southbound ramps, and the future intersection of County Road HH & County Road 16. Providing adequate spacing between these two intersections would prevent queues from one intersection interfering with operation of the other intersection.

The alignment of County Road HH is off-set at the intersection with County Road 14. A jog of about 100 feet currently exists at the intersection. As County Road HH would function as a north-south collector, elimination of the off-set at the intersection is recommended to improve the capacity of the intersection and the roadway. This would require right-of-way acquisition, and would affect existing structures. Land at one of the corners of the intersection would need to be acquired to align the roadway at the County Road 14 intersection.

The off-set alignment of County Road HH at County Road 14 would reduce the capacity of County Road HH, and impair the ability of County Road HH to function as a collector roadway. Locating the intersection of County Road HH & County Road 16 less than 500 feet away from the intersection of South Street (County Road 16) & the I-5 southbound ramps would result in potential interference between these two intersections. This is considered a potentially significant impact.

Realigning County Road HH at County Road 14, and locating the intersection of County Road HH & County Road 16 a minimum of 500 feet away from the intersection of South Street (County Road 16) & the I-5 southbound ramps would reduce this impact to a less-than-significant level.

EAST-WEST ROADWAYS

The circulation system in the Orland area includes several north-south roadways, including I-5, 8th Street, 6th Street, East Street, Papst Avenue, and County Road N. In part because of I-5 and the railroad tracks, east-west roadways are more limited, with SR 32 and South Street being the main east-west roadways. This pattern of roadways results in the circulation system having greater capacity in the north-south direction, and relatively less capacity in the east-west direction.

In the future, demand for additional east-west roadway capacity will increase. As noted earlier in this traffic impact study in the description of SR 32, the increase in demand would result from both land use development in Orland, and from regional through trips unrelated to development in Orland. Caltrans has noted the expected increase in demand, recommending in the *Transportation Concept Report State Route 32* (California Department of Transportation 2007), "Expansion of east/west parallel facilities, to be integrated in planned development . . ."

The General Plan Update circulation system includes extension of Stony Creek Drive to both the west and east. The extension of Stony Creek Drive would provide additional east-west capacity through the northern part of the City. Further additions to east-west capacity in the northern part of the City are constrained by existing land use development, and the presence of the Stony Creek waterway.

Development beyond the 20-year General Plan Update planning period in the area south of South Street would be substantial. As shown in **Figure 2**, the *Land Use Diagram*, this development would include

- Low Density Residential, Light Industrial/Commercial, and Heavy Industrial development between the current City Limits and County Road 18;
- Light Industrial/Commercial, and Heavy Industrial development in the vicinity of Haigh Field; and
- Residential Estate development between County Road 18 and County Road 20.

This new development beyond the 20-year horizon would be approximately equal in size to the

existing City. Because of the current limitations on east-west capacity, this development would result in substantial demand for additional east-west capacity. The level of this demand has not been quantitatively analyzed. However, it is considered a potentially significant impact. To reduce this impact to a less-than-significant level, the City should reserve right-of-way along the County Road 18 corridor as land use development occurs in the corridor. The right-of-way should be wide enough for a four-lane roadway. In the future, as more is known about the size and nature of development in the corridor, quantitative analysis should be conducted to identify the specific improvements that should be implemented.

COUNTY ROAD 20

Currently, access to I-5 in the Orland area is limited to two interchanges: at SR 32, and at South Street. The previous section of this traffic impact study, *Year 2028 With General Plan Update Conditions*, presents an analysis of traffic operations at these two interchanges. The analysis indicates these two interchanges, with recommended improvements, would operate at acceptable levels through the 20-year General Plan Update planning period.

In the long-term future, development along the southern portion of the Orland planning area would result in an increase in demand for access to I-5. The level of this demand has not been quantitatively analyzed. However, because of the current limited access to I-5, it is possible development beyond the 20-year planning horizon would result in the need for an additional I-5 interchange. This is considered a potentially significant impact.

When freeway interchanges are located too close to one another, merging, diverging and weaving movements at one interchange interfere with vehicle movements at the next interchange. In urbanized areas, freeway interchanges should be located at least one mile apart to avoid this interference. County Road 18 is one-half mile south of the existing I-5 interchange at South Street. Therefore, an additional I-5 interchange should not be constructed at County Road 18.

County Road 20 is located one mile south of the existing I-5 interchange at South Street. Because of its location in the southern portion of the planning area, locating an interchange at the County Road 20 crossing of I-5 would be logical. It is important to note, however, additional quantitative analysis would be needed in the future to determine the need for the additional interchange.

To reduce this impact to a less-than-significant level, the City should reserve right-of-way along the County Road 20 corridor as land use development occurs in the corridor. The right-of-way should be wide enough for a four-lane roadway, and should include enough right-of-way for an interchange at I-5. In the future, as more is known about the size and nature of development in the corridor, quantitative analysis should be conducted to identify the specific improvements that should be implemented.

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PERSONAL COMMUNICATIONS

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Friend, Scott. Project Manager, Pacific Municipal Consultants. November 14, 2007; May 13, 2009; May 21, 2009; June 29, 2009, and May 12, 2009 E-mail messages to Wayne Shijo, KD Anderson & Associates.

APPENDICES