Forest Ranch General Plan Amendment and Rezoning Draft Environmental Impact Report

SCH #2001122105



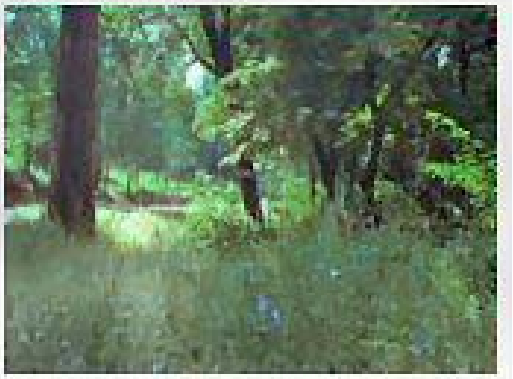
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May, 2004

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01576

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General Plan Amendment and Rezoning
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EXECUTIVE SUMMARY

PROJECT DESCRIPTION

The proposed project consists of a General Plan Amendment to the 1981 Foresthill General Plan and zoning to accommodate the proposed Forest Ranch project. No site-specific entitlements are requested as part of this project application. The proposed land use designations and zoning districts would accommodate the following elements:

Residential Uses: The applicant currently plans development within the rezoned property consisting of 2,213 residential units, of which approximately 1,700 would be age-restricted. The remaining 513 hosing units will consist of 216 townhomes and 297 single family detached residential dwellings.

Recreational Uses: The applicant plans to use the Recreation zoned area for an 18-hole golf course, including a clubhouse and other recreational facilities associated with a golf course/retirement community is proposed on approximately 195 acres. The applicant also plans to include an equestrian center, a 100-unit recreational vehicle park, community trails and wilderness trail.

Open Space: Approximately 1,128 acres are proposed to be maintained as open space.

Other Uses: Approximately 5 acres are designated for office and professional uses, accommodating an estimated 19,000 square feet of office space.

Related infrastructure improvements include streets, a water system, storm drainage, dry utilities, sewer collection and treatment facilities.

The project site is approximately 2,615.59 acres located north and east of the unincorporated community of Foresthill, Placer County, California. The major portion of the project site is located north of Foresthill Road, but a portion is located east of Foresthill Road. Blackhawk Lane forms a portion of the northeasterly boundary of the site, then crosses through the site to provide access to an existing subdivision north of the site. Yankee Jim's Road also provides access to and traverses the southwesterly portion of the site.

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Section 15123(b)(1) of the Guidelines for Implementation of the California Environmental Quality Act (State CEQA Guidelines) provides that the summary shall identify each significant effect with proposed mitigation measures that would reduce or avoid that effect. This information is summarized in Table S-1, Summary of Impacts and Mitigation Measures.

ALTERNATIVES TO THE PROJECT

Section 15126.6 of the State CEQA Guidelines requires the EIR to describe a reasonable range of alternatives to the project or to the location of the project that could feasibly accomplish the basic objectives of the project, and to evaluate the comparative merits of the alternatives. The impacts of the proposed project that have been identified as significant after mitigation include: consistency of the proposed project with the Draft Foresthill Divide Community Plan; alteration of views of the project site from roadways along and through the site, and from surrounding properties; aesthetic impacts due to tree removal, grading and new construction; growth-inducing impacts; an imbalance of jobs and housing due to the proposed project; potential lack of mass balance due to grading on the project site, requiring importation or exportation of fill; cumulative contribution of the proposed project to the loss of habitat and forage lands, habitat degradation due to encroaching urbanization, direct impacts to sensitive species, habitat fragmentation, and obstruction of movement corridors, and harassment of wildlife by humans and pets; exhaust and fugitive dust emissions generated by construction activities at all phases of the proposed project; generation of mobile and stationary source air pollutants due to operation of the proposed project; loss of timber production land due to the proposed project; potential project-related effects on prehistoric or historic archaeological sites on the project site; substantial increases in traffic volumes and deterioration in Level of Service on study area roadways under Existing Plus Project conditions; substantial increases in traffic volumes and deterioration in Level of Service on study area roadways under Future Plus Project conditions; and exposure of people to hazards associated with abandoned mines on the project site.

The EIR evaluates the following alternatives:

- No Project/No Build Alternative
- No Project/Limited Development Alternative
- Reduced Project, FDCP Alternative
- Reduced Project, Age Restricted Community Only

Two alternatives were considered and dismissed from further consideration: an alternative project site, and a non-age restricted community. The reasons for dismissal are explained in Chapter Four.

The No Project/No Build Alternative has been identified as the environmentally superior alternative. If the environmentally superior alternative is the "no project" alternative, the EIR must also identify an environmentally superior alternative among the remaining alternatives. The environmentally superior alternative among the remaining alternatives is the Reduced Project, FDCP Alternative. A detailed evaluation of these alternatives is included in Chapter Four. The alternatives and associated impacts are summarized as follows:

- No Project/No Build Alternative. Under this alternative, no additional development would occur on the project site. Existing facilities on the site would remain, including unpaved

roads, closed mineshafts, and various utility lines that exist on the project site. It is assumed under this alternative that commercial logging and Christmas tree sales would continue to occur. Impacts on land use and land use conflicts, aesthetics, light and glare, population, jobs/housing imbalance, public services and facilities, grading, permanent loss of timber resources, water quality, habitat for special-status species, flooding hazards, air quality, odors, cultural and paleontological resources, circulation/transportation, noise and hazards would be reduced under this alternative. However, because logging activity would still be allowed, impacts would occur related to land use conflicts, aesthetics, water quality, habitat for special-status species, and noise, but would be reduced compared to the proposed project.

- No Project/Limited Development Alternative. Under this alternative, the project site will be developed in accordance with the existing Foresthill General Plan land use designations, existing land divisions and available infrastructure. The existing General Plan designates the project site for Forestry and Rural Residential. In addition to forestry and related uses permitted in the Forestry designation, the Rural Residential designation allows detached single-family dwellings and secondary dwellings; agricultural uses, equestrian facilities, and limited agricultural support businesses; resource extraction uses; various facilities and services that support residential neighborhoods; and parks and necessary public utility and safety facilities. It has been determined that the existing General Plan and zoning designations would allow development of a maximum of 591 non-age restricted dwelling units on the project site, although the actual number of dwelling units that could be developed would be determined by the type of wastewater disposal and terrain. Impacts on land use would be reduced because of the reduced number of dwelling units; however, land use conflicts could occur between timber harvesting and residential uses. Impacts on aesthetics, light and glare, population, jobs/housing imbalance, most public services and facilities, grading, forest habitat, habitat for special-status species, flood hazards, air quality, odors, cultural and paleontological resources, circulation/transportation, noise, and hazards would be reduced. Impacts related to water quality (due to an increased number of septic systems) and schools and parks (due to an increased number of children) would not be reduced, and could increase. Impacts related to timber harvesting would still occur.

- Reduced Project, FDCP Alternative. Under this alternative, the project site would be developed in accordance with the Draft Foresthill Divide Community Plan. The Draft FDCP and Development Standards require that a specific plan be prepared for the Forest Ranch project site, and limit the site to a maximum of 533 dwelling units on 1,380 acres. The balance of the site would be placed in a Forestry, 160 Acre Minimum Parcel Size designation and zoned Timberland Production Zone (TPZ). Residential units and lots would generally be concentrated closer to the core of Foresthill, with densities reduced as development occurs further out. Open space and trails would be emphasized. Other recreational development may include a golf course, equestrian facilities, mountain bike courses and related facilities. No recreational vehicle park would be developed. Architectural and design standards would be applied that emphasize relationship to existing terrain and natural features, views and viewsheds. A homeowners association or similar entity would be formed to ensure compliance with architectural and design standards. Impacts on land use and land use conflicts, aesthetics, population, jobs/housing imbalance, most public services and facilities, grading, forest habitat, habitat for special-status species, flood hazards, air quality, odors,

cultural and paleontological resources, circulation/transportation, noise, and hazards would be reduced. Impacts related to water quality (due to the potential use of septic systems rather than a wastewater treatment facility) and schools and parks (due to an increased number of children) could increase. Impacts related to timber harvesting would still occur.

- Reduced Project, Age Restricted Community Only. This alternative assumes that the entire project would be age restricted. The number of residential units would be limited to a maximum of 1,700. These units would be clustered near the golf course and the existing community core, with the remainder of the site remaining in natural open space. The Development Standards described in Appendix B of the Draft FDCP would be applied to the project, including minimum open space requirements and limitations on commercial uses; however, a variety of housing types would be permitted to encourage clustering, affordability and density closer to the core of the community. The equestrian center and recreational vehicle park would be retained. Impacts on land use and land use conflicts, aesthetics, light and glare, population, jobs/housing imbalance, public services and facilities, grading, forest habitat, habitat for special-status species, flood hazards, air quality, cultural and paleontological resources, circulation/transportation, noise and hazards would be reduced compared to the proposed project, but not to the extent that they would be reduced under the other alternatives. Impacts on schools and parks would be further reduced as compared to the No Project/Limited Development Alternative, the Reduced Project, FDCP Alternative, and the proposed project because all units would be age restricted. Impacts related to timber harvesting would still occur.

CHAPTER ONE
INTRODUCTION

1.1 PROPOSED ACTION

The proposed project consists of a General Plan Amendment (to the Placer County General Plan and the 1981 Foresthill General Plan) and Rezoning to accommodate the proposed 2,615-acre Forest Ranch project. The current land use designations are Forestry and Rural Residential, and current zoning is Forestry and Residential-Forestry. The proposed land use designations and zoning would allow a residential and recreational development with 2,213 residential units, of which the majority (1,700 units) would be age-restricted, and recreational uses including an 18 hole golf course, related facilities, equestrian center, and 100-unit recreational vehicle park. Of the remaining 513 non-age restricted units, 216 are proposed to be townhomes. Approximately 5 acres of office and professional uses would also be developed, and approximately 1,128 acres (or 43% of the site) would remain in open space.

1.2 PROCEDURES

Pursuant to Section 15168 of the Guidelines for Implementation of the California Environmental Quality Act (CEQA Guidelines), a Program Environmental Impact Report (EIR) is prepared for a series of related actions that can be characterized as one large project, such as a general plan or specific plan. In contrast, a project EIR, the most common type of EIR, examines the impacts that would result from a specific development proposal or other project.

Through the preparation of an Initial Study, the County of Placer has determined that a Program Environmental Impact Report (EIR) should be prepared for the proposed project in accordance with the California Environmental Quality Act (CEQA) and CEQA Guidelines Section 15063. A Notice of Preparation (NOP) was circulated from December 20, 2001 through January 28, 2002 for review and comment by responsible, trustee and local agencies. The NOP and responses to the NOP are included as Appendix A of this EIR.

As defined by Section 15378 of the CEQA Guidelines, a "project" is any action that "…has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment…" Section 15093 of the Guidelines requires the decision-makers to balance the benefits of a proposed project against any unavoidable environmental effects of the project. If the benefits of the project outweigh the unavoidable adverse environmental effects, the decision-makers may adopt a statement of overriding considerations, finding that the environmental effects are acceptable in light of the project's benefits to the public.

Under CEQA, the Lead Agency is usually the public agency with authority to approve or deny the project. In this case, the Placer County Board of Supervisors will act as Lead Agency with authority to certify the EIR. Under Section 15381 of the Guidelines, a "responsible agency" is a public agency other than the lead agency that has discretionary approval authority over the project, and will utilize the EIR prepared for the County. The lead agency is a County

government, which has the discretionary authority to amend its land use documents and regulations.

The CEQA process requires that the lead agency seriously consider input from other interested agencies, citizen groups and individuals. CEQA provides for a public process requiring full public disclosure of the expected environmental consequences of the proposed action. The public must be given a meaningful opportunity to comment. CEQA also requires monitoring to ensure that mitigation measures are carried out.

CEQA requires a public review period, normally 45 days, for commenting on the Draft EIR. During the review period, any agency, group or individual may comment in writing on the Draft EIR, and the lead agency must respond to each comment on environmental issues in the Final EIR. According to Section 15202 of the CEQA Guidelines, CEQA does not require formal hearings at any stage of the environmental review process. However, it is typical to consider the EIR and its findings during public hearings required for the associated project.

1.3 METHODOLOGY

This EIR analyzes and evaluates the potential effects of a General Plan Amendment and Change of Zone on this 2,615-acre site. Included in this environmental analysis are the direct impacts of residential and recreational development on the project site, as well as the cumulative and growth-inducing effects on the local and regional environment. This EIR is intended to be a program EIR, as described in Section 1.2 above. Section 15168 of the State CEQA Guidelines provides the following description of when a program EIR is used:

> (a) General. A program EIR is an EIR which 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.

Section 15168 also describes the use of a program EIR with later activities.

> (c) Use with Later Activities. Subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared.

(1) If a later activity would have effects that were not examined in the program EIR, a new initial study would need to be prepared leading to either an EIR or a negative declaration.

(2) If the agency finds that pursuant to Section 15162, no new effects could occur or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required.

(3) An agency shall incorporate feasible mitigation measures and alternatives developed in the program EIR into subsequent actions in the program.

(4) Where the subsequent activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR.

(5) A program EIR will be most helpful in dealing with subsequent activities if it deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed analysis of the program, many subsequent activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required.

(d) Use With Subsequent EIRs and Negative Declarations. A program EIR can be used to simplify the task of preparing environmental documents on later parts of the program. The program EIR can:

(1) Provide the basis in an initial study for determining whether the later activity may have any significant effects.

(2) Be incorporated by reference to deal with regional influences, secondary effects, cumulative impacts, broad alternatives, and other factors that apply to the program as a whole.

(3) Focus an EIR on a subsequent project to permit discussion solely of new effects which had not been considered before.

From December 20, 2001 through January 28, 2002, the Placer County Planning Department circulated a Notice of Preparation (NOP) for the proposed project to responsible and trustee agencies and other interested parties, inviting them to comment upon the appropriate scope of the environmental analysis, as required by the California Environmental Quality Act. A copy of the

NOP and the responses received by the County, including comments received from the public, are included as Appendix A of this Draft EIR.

Based on the NOP process, the County has determined that this Program EIR should focus on the following specific aspects of the environment:

- Land Use. The EIR analyzes land use compatibility both within the proposed project as well as with existing and planned land uses in proximity to the project site. The consistency of the proposed project with the adopted and proposed plans for the Foresthill community, as well as other relevant portions of the Placer County General Plan, are also addressed. The EIR discusses jobs/housing balance and impacts unique to senior and recreation-oriented communities. This section also addresses, at a program EIR level, grading and earthwork impacts of the proposed project.

- Aesthetics. The EIR analyzes light and glare impacts of the proposed project; night sky impacts from increased lighting; aesthetic impacts due to tree removal, grading and new construction; and scenic viewsheds and corridors.

- Community Development. This section of the EIR addresses impacts of the proposed project on public services and facilities, including law enforcement, fire protection/emergency medical services, solid waste collection and disposal, parks and recreation, schools, road maintenance/snow removal, electrical service and telecommunications, wastewater treatment and disposal, water supply and distribution, and storm drainage. The EIR also analyzes impacts on population and housing, as well as growth-inducing impacts that may result from extension/establishment of utility systems.

- Natural Resources. This section of the EIR analyzes impacts of the proposed project on natural resources, including soils and vegetation, wetlands/waters of the United States, fish and wildlife, paleontology, hydrology/water quality, agriculture/timber resources, and air quality.

- Cultural Resources. The EIR includes results of a literature review and records search and a reconnaissance survey of the project site. This section includes an evaluation of the significance of heritage resources that may be affected by the proposed project, and a generalized assessment of project impacts on the resources identified.

- Circulation/Transportation. This section of the EIR addresses the general circulation and transportation impacts of the proposed project. Daily traffic volume projections have been developed, projected traffic conditions and impacts have been analyzed. Future roadway improvements needed to accommodate the proposed project are identified. The EIR also examines transportation management strategies, non-automotive transportation, public transit, and construction traffic impacts.

- Noise. The EIR includes a noise analysis of existing noise levels, existing traffic noise levels, future traffic noise levels due to and upon the project, and an analysis of on-site noise sources.

- Health and Safety. This section of the EIR addresses emergency response plans for the area; the potential for risk of upset due to features such as proposed wastewater disposal; the potential for hazardous materials, hazardous sites, and hazards related to historic mine sites; fire hazards; flood hazards; and seismic and geological hazards related to the project site.

1.4 ORGANIZATION OF THE EIR

The next chapter of the EIR describes the project in greater detail and summarizes the general characteristics of the project location. Chapter Two also includes a summary of County plans and policies as they relate to the project. Chapter Three describes specific characteristics of the project's environmental setting, identifies and discusses potentially significant project-related impacts for the topics addressed in the EIR, and sets forth mitigation measures for those impacts, as appropriate. The evaluation of impacts has been organized in the following manner:

SETTING

A description of the environment which may be affected by the project. This topic also includes a discussion of the regulatory environment that is applicable to the project.

IMPACTS AND MITIGATION MEASURES

Impact Evaluation Criteria

The standard or threshold by which impacts are measured is identified, with the objective of determining if an impact will be significant.

Impact #: Each impact is described and listed by number for future reference. This is followed by a discussion of the impact; a statement whether the impact is significant or less than significant; if found to be significant, a determination whether or not the impact can be avoided or reduced to an acceptable level through implementation of mitigation measures, or if the impact is unmitigable, unavoidable and/or irreversible.

Mitigation Measure #: Each mitigation measure is described and listed by number for future reference. The numbering of the mitigation measure is the same as the impact to which it applies. The discussion includes a statement whether or not the recommended measure will reduce the impact below the level of significance, based on the impact evaluation criteria.

Chapter Four describes and evaluates alternatives to the proposed project. The proposed project is compared to each alternative, and the environmental ramifications of each are analyzed. The fifth chapter addresses mandatory CEQA sections, including effects not found to be significant, unavoidable significant impacts and irreversible impacts. Following the text of this EIR, appendices have been included to facilitate full environmental review of the proposed project.

1.5 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

The following issues are most likely to produce controversy in reviewing and considering the proposed project:

- The extent and density of proposed residential land uses, which conflict with the proposed Foresthill Divide Community Plan Appendix "B" Development Standards for the project site.

- Adequacy of public services and facilities to serve the proposed project, including the local volunteer fire department and equipment, availability of emergency medical services, and water supply.

- The adequacy of, and impacts associated with, the proposed on-site wastewater treatment system.

- Traffic associated with the proposed project and impacts on area roadways.

- Impacts on biological resources.

- The growth-inducing impact of the proposed project.

1.6 USES OF THE EIR

If the County approves the proposed project, subsequent actions, permits and approvals are necessary. Section 15124(a)(1) of the State CEQA Guidelines requires that an EIR include, to the extent that the information is known to the lead agency, a list of the agencies that are expected to use the EIR in their decision-making, and a list of permits and other approvals required to implement the project. It also requires that the EIR include a list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies. Table 1-1 includes all of this information, to the extent it is known at this time by Placer County.

Table 1-1
Subsequent Permits and Approvals

Agency	Approvals
Placer County Planning Commission/Board of Supervisors	• Specific Plan • Tentative Subdivision Map(s) • Parcel Map(s) • Conditional Use Permit(s) • Minor Use Permit(s) • Environmental Documents Associated with these approvals
Placer County Building Department	• Building Permit(s) • Grading Permit(s)

Agency	Approvals
Placer County Public Works Department	• Encroachment Permit(s), Improvement Plans, Final Maps, Grading Permits
Placer Local Agency Formation Commission	• Annexation to Foresthill PUD • Formation of new Zone of Benefit for CSA #28 • Formation of new special district or expansion of services provided by Foresthill PUD
Placer County Environmental Health Services	• Individual on-site sewage disposal permits
State Water Resources Control Board	• Appropriative Water Rights
Regional Water Quality Control Board	• Waste Discharge Requirements • NPDES General Construction Stormwater Permit(s) • Stormwater Pollution Prevention Plan • Federal Clean Water Act, Section 401 Clean Water Certification
California Department of Fish and Game	• Section 1603 Streambed Alteration Agreement(s)
U.S. Army Corps of Engineers	• Section 404 Permit

Note: Not all permits/approvals listed above may ultimately be required for the proposed project.

CHAPTER TWO
PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND EXISTING SITE CONDITIONS

2.1.1 LOCATION

The project site consists of approximately 2,616 acres located north and east of the unincorporated community of Foresthill, Placer County, California. The major portion of the project site is located north of Foresthill Road, but a portion is located east of Foresthill Road. Blackhawk Lane forms a portion of the northeasterly boundary of the site, then crosses through the site to provide access to an existing subdivision north of the site. Yankee Jim's Road also provides access to and traverses the southwesterly portion of the site (see Figures 2-1 and 2-2).

The project site is located on the Foresthill Divide, a long northeast-trending ridge system separating the North and Middle Forks of the American River. The project site is a portion of Sections 22, 23, 24, 25, 26, 27, 34 and 35, Township 14 North, Range 10 East; a portion of Section 30, Township 14 North, Range 11 East; and a portion of Sections 2 and 3, Township 13 North, Range 10 East, Mount Diablo Base & Meridian. The site encompasses a total of 31 Assessor's parcels (see Figures 2-3 and 2-4).

2.1.2 SITE CHARACTERISTICS AND EXISTING CONDITIONS

The "Forest Ranch" project site, as it is now known, has had several names over the years. The property was known as the "Pomfret Estate" from the late 1940s until the property was acquired by the project applicants in 1991, when it began to be referred to (in official correspondence and various permit applications with Placer County) as the "Foresthill Associates" property. The "Forest Ranch" name was assigned to the property by the owners in 2001.

The project site is characterized by forest vegetation, relatively level to steep topography (including two canyons), and seasonal drainages. Site elevation ranges from approximately 2,200 to 3,400 feet above mean sea level, and encompasses several major life zones that gradually change with increasing altitude. Natural habitat types in this region of Placer County include mixed chaparral, mixed coniferous forest, and montane hardwood. Additional habitat types found throughout Placer County include annual grassland, blue oak woodland, open water, and river/stream.

Although the site is undeveloped, it is not undisturbed. Several dirt roads traverse the property, as well as three County roads (Foresthill Road, Yankee Jim's Road and Blackhawk Lane). The property has been logged in the past and most tree cover is second growth. Portions of the property have been reforested, including some trees planted for Christmas tree production. There is evidence of past mining (closed mineshafts, altered landforms caused by hydraulic mining) on the site. The property encompasses two landlocked parcels with residences owned by other parties (see Figure 2-4). Existing land uses adjacent to and on the project site include

timber lands, rural residential, low density residential, and undeveloped land. Uses in the project vicinity include commercial development, timber lands, low density residential, and recreational.

2.2 PROJECT DESCRIPTION

The proposed project consists of a General Plan Amendment to the 1981 Foresthill General Plan and rezoning to accommodate the proposed Forest Ranch project. No site-specific entitlements (e.g., tentative subdivision maps, conditional use permits) are requested as part of this project application. The California Board of Forestry and the Placer County Board of Supervisors approved a rezoning application in 1993 that changed the zoning on the majority of the site (2,025± acres) from TPZ to Forestry (160-acre minimum lot size) effective June 2, 2003. The remainder of the site (590.69 acres) is zoned Residential-Forestry, Combining a Minimum Building Site size of 1 acre, Combining a Planned Development designation of 1.0 dwelling units per acre (RF-B-43, PD-1.0) (see Figure 2-5).

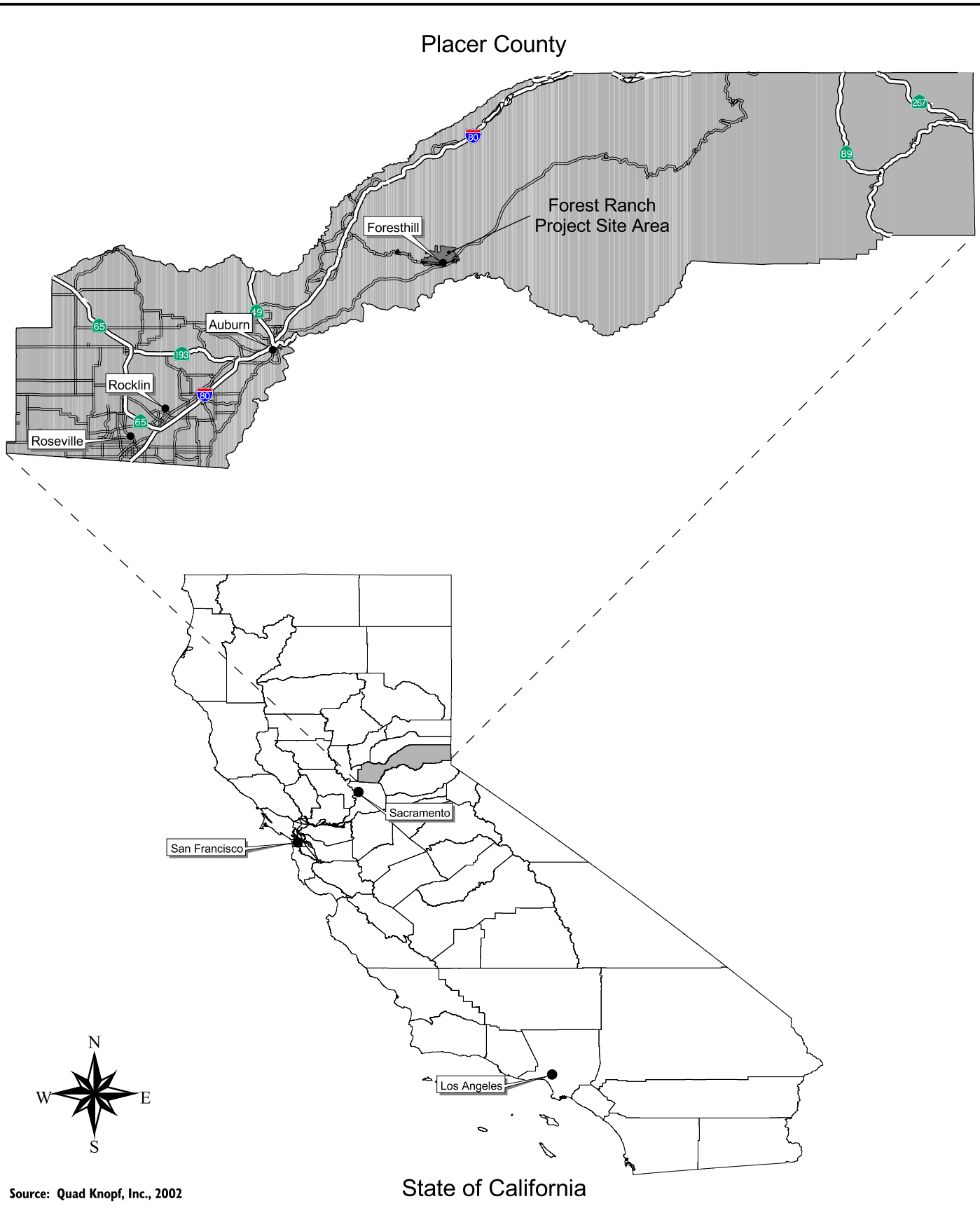
The current Foresthill General Plan (1981) land use designations on the project site are as follows (see Figure 2-6):

Forestry (20 to 160-acre minimum) (2,025± acres)
Rural Residential (1.0 to 2.3 acre minimum) (591± acres)

The proposed land use designations and zoning districts that are included in the application are as shown in Table 2-1 (see Figures 2-7 and 2-8).

Table 2-1
Proposed Land Use Designations and Zoning Districts

Land Use Designations	Proposed Zoning	Acreage	# Units	Units Per Acre	Percentage
RR-5 – Rural Residential	RF-B-X 5 ac min. PD 0.2	189	37	1/5 acres	7%
RR-2.3 – Rural Residential	RF-B-X 2.3 ac min. PD 0.44	71	29	1/2.3 acres	3%
RR-1 – Rural Residential	RF-B-43 PD 1.0	309	271	1/1 acre	12%
LD-2 – Low Density Residential	RS-PD 2.0	190	334	2/1 acre	7%
LD-3 – Low Density Residential	RS-PD 3.0	291	698	3/1 acre	11%
MD-4 – Medium Density Residential	RS-PD 4.0	140	448	4/1 acre	5%
MD-6 – Medium Density Attached Residential	RS-PD 6.0	83	396	6/1 acre	3%
RES – Resort (14 acres)	RESORT	14			Less than 1%
GC – General Commercial	OFFICE & PROFESSIONAL	5			Less than 1%
OS – Greenbelt & Open Space	OPEN SPACE	1,323			50%



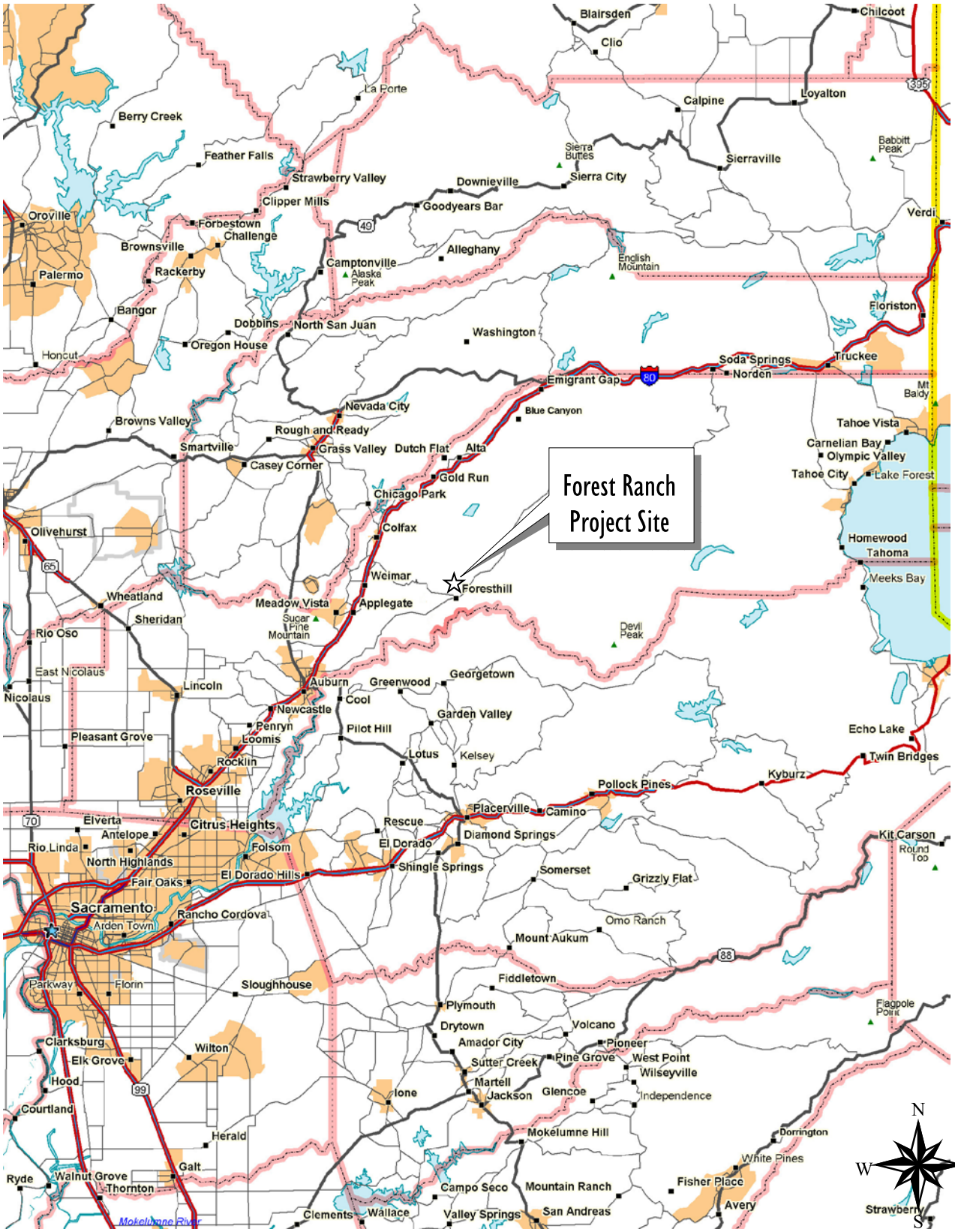
Source: Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

Location Map

Figure 2-1



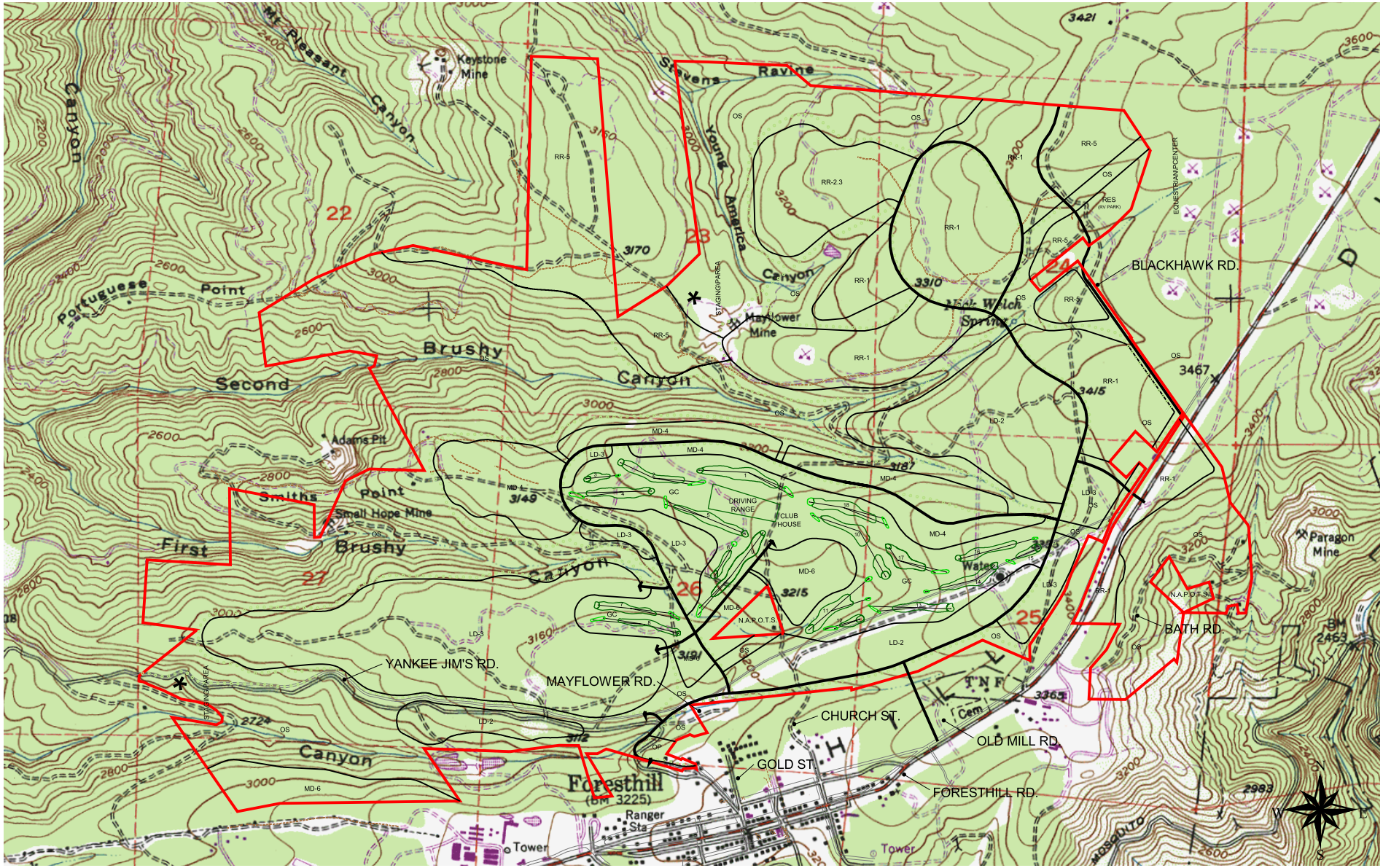
Source: DeLorme Street Atlas USA, 2001 / Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

Vicinity Map

Figure 2-2



Source: GW Consulting Engineers, 2001 / Quad Knopf, Inc., 2002

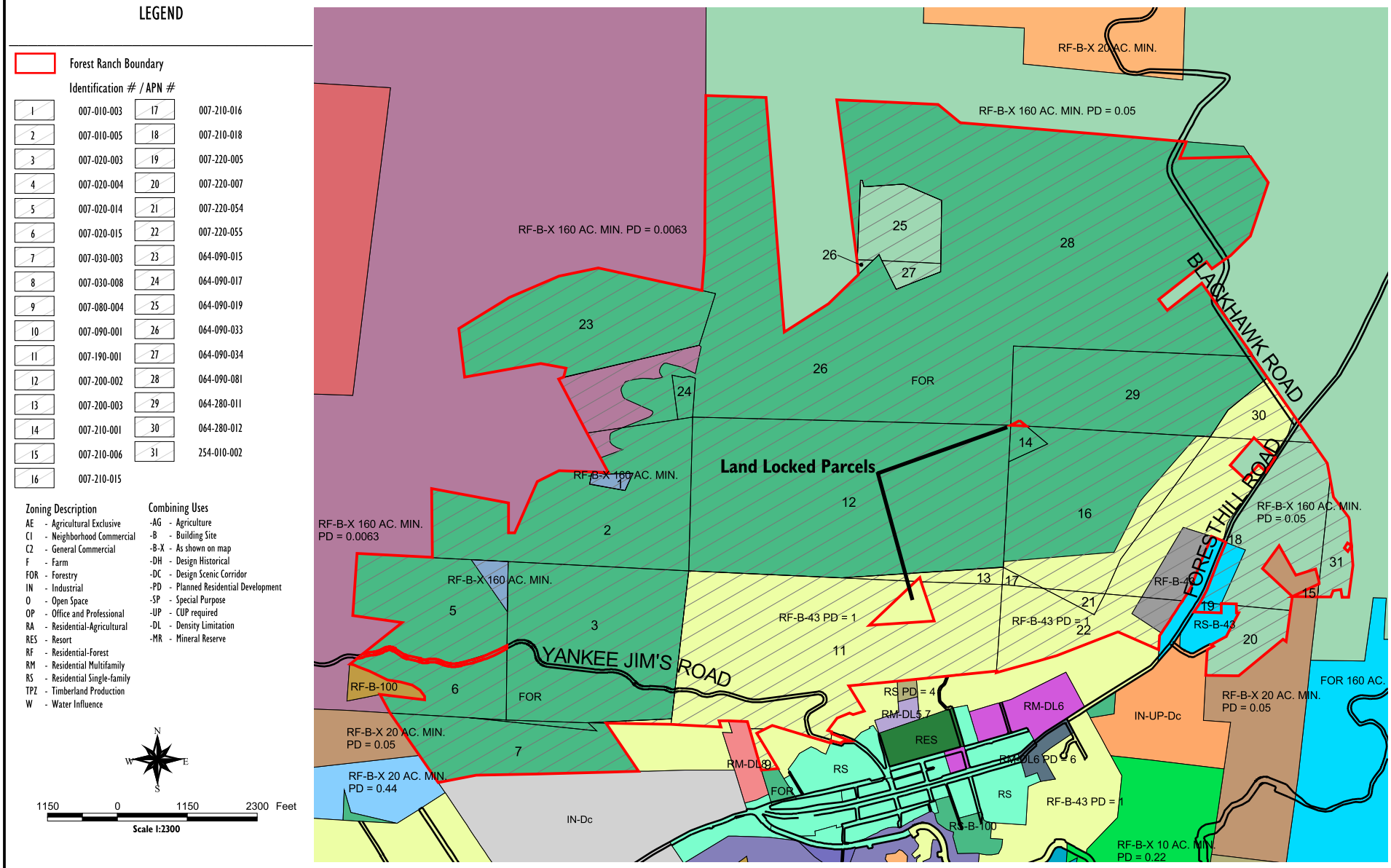
1000 0 1000 2000 3000 4000 Feet

Quad Knopf

FOREST RANCH EIR

Project Site

Figure 2-3



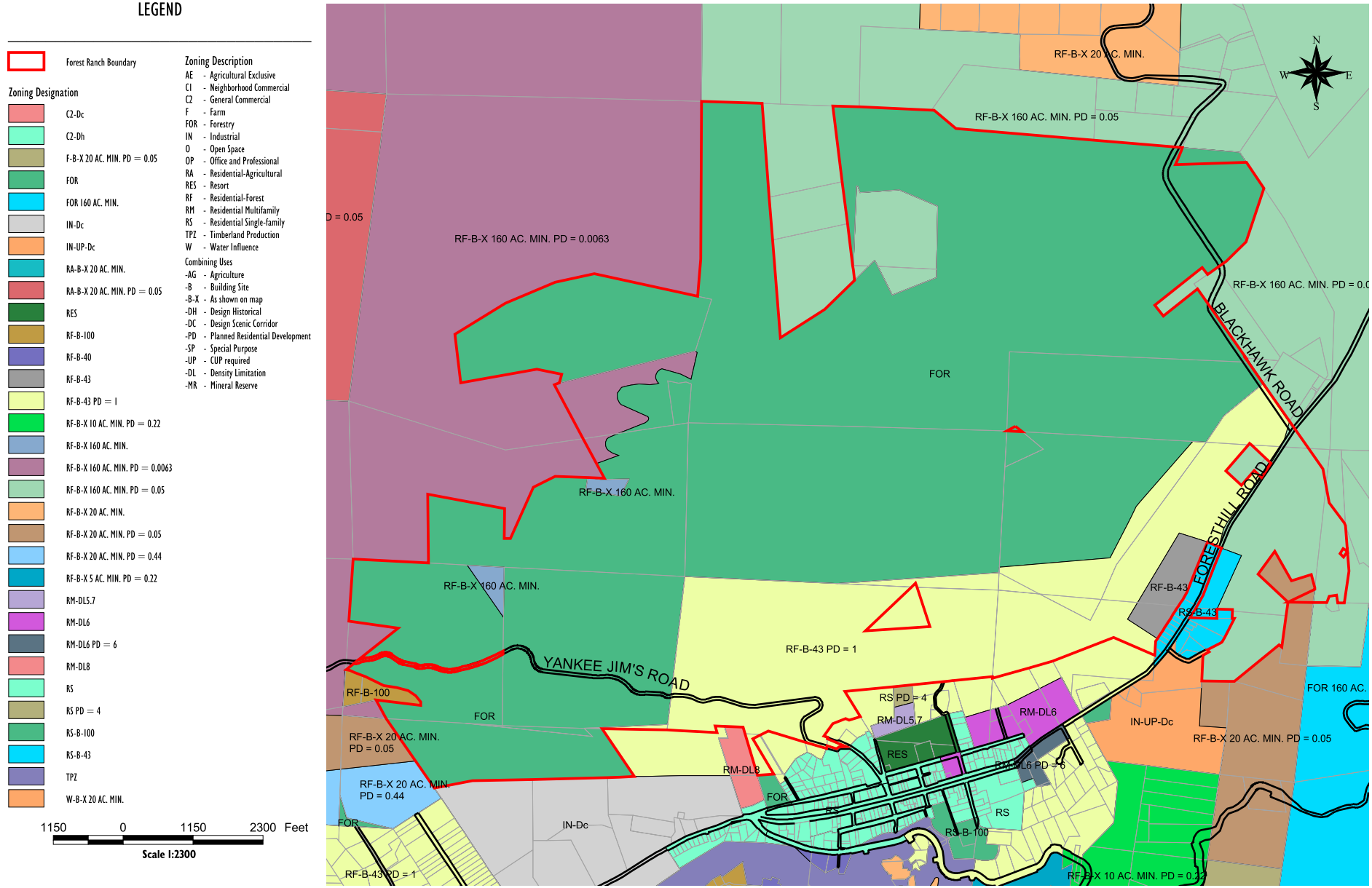
Source: Placer County Planning Department, 2002 / Quad Knopf Inc., 2002

Quad Knopf

FOREST RANCH EIR

Assessors Parcels and Existing Zoning

Figure 2-4



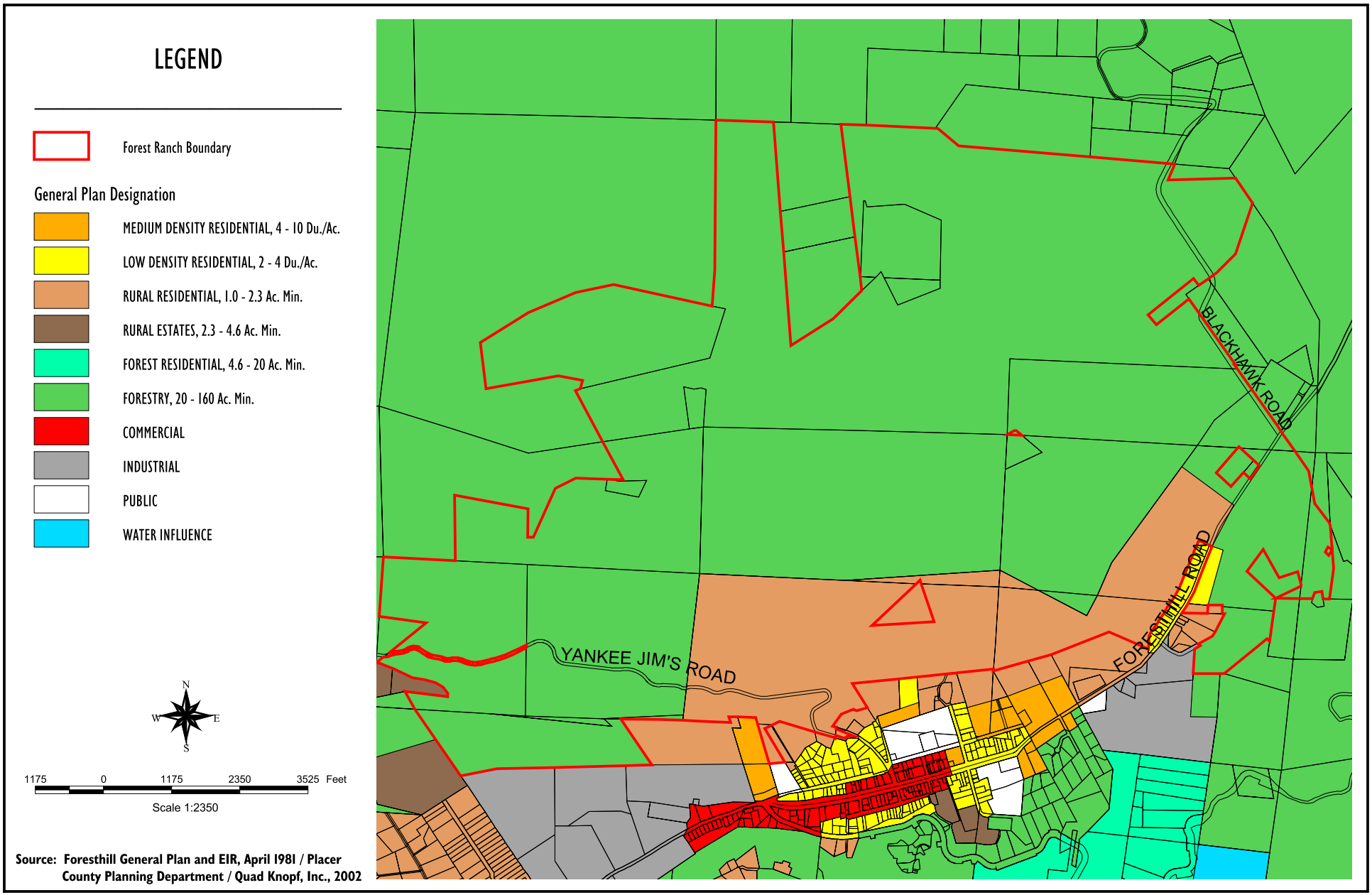
Source: Placer County Planning Department,2002Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

Existing Zoning

Figure 2-5



Quad Knopf

FOREST RANCH EIR

Existing Foresthill General Plan

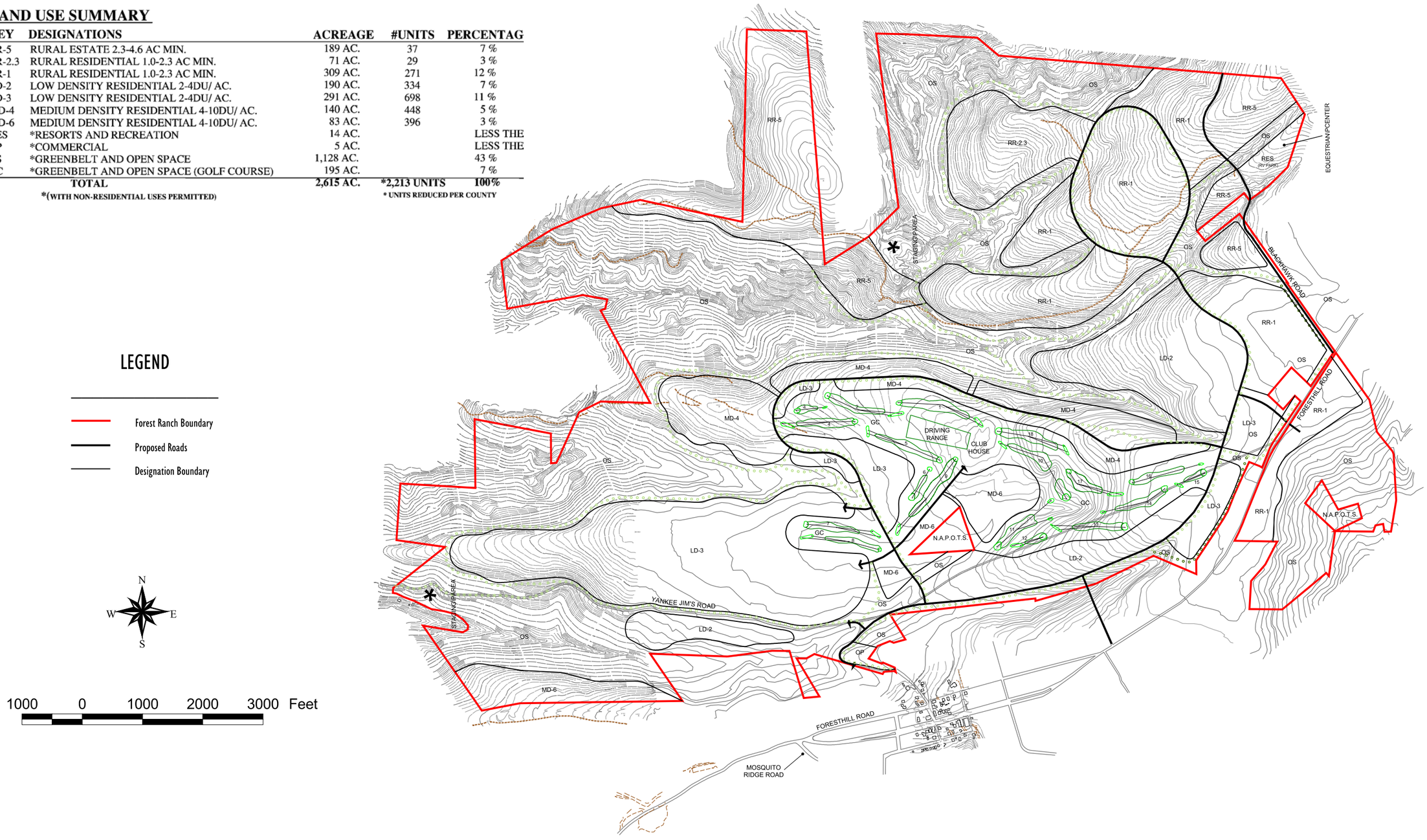
Figure 2-6

LAND USE SUMMARY

KEY	DESIGNATIONS	ACREAGE	#UNITS	PERCENTAG
RR-5	RURAL ESTATE 2.3-4.6 AC MIN.	189 AC.	37	7 %
RR-2.3	RURAL RESIDENTIAL 1.0-2.3 AC MIN.	71 AC.	29	3 %
RR-1	RURAL RESIDENTIAL 1.0-2.3 AC MIN.	309 AC.	271	12 %
LD-2	LOW DENSITY RESIDENTIAL 2-4DU/ AC.	190 AC.	334	7 %
LD-3	LOW DENSITY RESIDENTIAL 2-4DU/ AC.	291 AC.	698	11 %
MD-4	MEDIUM DENSITY RESIDENTIAL 4-10DU/ AC.	140 AC.	448	5 %
MD-6	MEDIUM DENSITY RESIDENTIAL 4-10DU/ AC.	83 AC.	396	3 %
RES	*RESORTS AND RECREATION	14 AC.		LESS THE
OP	*COMMERCIAL	5 AC.		LESS THE
OS	*GREENBELT AND OPEN SPACE	1,128 AC.		43 %
GC	*GREENBELT AND OPEN SPACE (GOLF COURSE)	195 AC.		7 %
	TOTAL	**2,615 AC.**	***2,213 UNITS**	**100%**

*(WITH NON-RESIDENTIAL USES PERMITTED)

* UNITS REDUCED PER COUNTY



Source: GW Consulting Engineers, 2001 / Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

Proposed Land Use Designations

Figure 2-7

LAND USE SUMMARY

KEY	DESIGNATIONS	ACREAGE	*#UNITS	PERCENTAGE
RF-5	RF-B-X 5 AC. MIN PD 0.2	189 AC.	37	7 %
RF-2.3	RF-B-X 2.3 AC. MIN PD 0.44	71 AC.	29	3 %
RF-1	RF-B-43 PD 1.0	309 AC.	271	12 %
RS-2	RS-PD 2	190 AC.	334	7 %
RS-3	RS-PD 3	291 AC.	698	11 %
RS-4	RS-PD 4	140 AC.	448	5 %
RS-6	RS-PD 6	83 AC.	396	3 %
RES	RESORT	14 AC.		LESS THEN 1 %
OP	OFFICE & PROFESSIONAL	5 AC.		LESS THEN 1 %
OS	OPEN SPACE	1,128 AC.		43 %
GC	OPEN SPACE (GOLF COURSE)	195 AC.		7 %
	TOTAL	**2,615 AC.**	***2,213 UNITS**	**100%**

* UNITS REDUCED PER COUNTY SECTION 10.064

LEGEND

- Forest Ranch Boundary
- Proposed Roads
- Designation Boundary

N
W E
S

1000 0 1000 2000 3000 Feet



Source: GW Consulting Engineers, 2001 / Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

Proposed Zoning Designations

Figure 2-8

The proposed application to amend the Foresthill General Plan and rezoning is a residential and recreation development, consisting of the following components:

Residential Uses: 2,213 residential units, of which approximately 1,700 would be age-restricted (55 years of age and older). The remaining 513 housing units will consist of 216 townhomes and 297 single-family detached residential dwellings. A mixture of housing options is proposed to be provided, from townhomes to rural residential parcels (one dwelling unit/5 acres). Affordable housing units are proposed to be included in accordance with County policy, although the number of proposed affordable units is not identified in the application.

Recreational Uses: An 18-hole golf course, including a clubhouse and other recreational facilities generally associated with a golf course/retirement community (e.g., restaurants, meeting rooms, swimming pool, driving range), is proposed on 195 acres. The proposed project also includes an equestrian center to provide for the boarding of horses and a staging area for the project's equestrian trail system. A 100-unit recreational vehicle park is also included in the project. According to the project application, the golf course (and related facilities) and RV park will be open for public use; the equestrian center is intended to serve project residents. The proposed equestrian center and RV park total approximately 14 acres. The proposed project includes 17 miles of "community trails" and 0.8 mile of "wilderness trail."

Office and Professional Uses: Approximately 5 acres are proposed to be designated for office and professional uses. For the purpose of this analysis, it was estimated that there would be 19,000 square feet of office and professional uses.

Open Space: Approximately 1,128 acres, or 43% of the project site, is proposed to be maintained as open space to protect sensitive habitats and slopes and to provide project buffering.

Infrastructure Improvements: Improvements needed to serve the development include those related to streets, water system, storm drainage, dry utilities, sewer transmission and treatment facilities, the golf course, recreational vehicle park and equestrian center, and trails. Major infrastructure improvements include a wastewater treatment facility (proposed to be constructed and operated to State Water Resources Control Board standards), a water system and roads. The applicant has also indicated that the project's proposed General Development Plan (Figure 2-7) shows the conceptual location of the project's major collector road system. A more detailed circulation plan will be a part of future subdivision map applications. Improvements for proposed streets and accesses to the project site will be consistent with the appropriate County standard. Any existing wells and septic systems are proposed to be abandoned with development of the site. No need for improvements to off-site private facilities has been identified by project applicants.

Access, Easements and Rights-of-Way: No construction will occur directly as a result of this application; however, when future development occurs, it is anticipated that construction equipment and materials will access the project site via Foresthill Road. Subsequent entitlements will be required to provide specific information regarding on-site construction staging areas.

Onsite easements and rights-of-way will be dedicated, as necessary through future map approvals and/or use permit approvals, to accommodate the proposed development improvements and public utilities. Off-site dedications for access and utilities will be provided as necessary and required by the County (e.g., additional right-of-way on Foresthill Road.)

Phasing: It is anticipated by the applicants that the phasing of the project and related improvements will occur in increments containing up to 150 units per year. Construction of the golf course is anticipated to commence with the first phase of development. Buildout will be dependent on market conditions, but current estimates are for a buildout of approximately 15 years.

2.3 PROJECT OBJECTIVES

The applicant's project objectives, as submitted to the Placer County Planning Department, are as follows:

> Forest Ranch Associates proposes an amendment to the 1981 Foresthill General Plan and a rezoning in order to accommodate development of the Forest Ranch property. The project will include development of 2,213 residential units, of which approximately 1,700 will be age restricted to individuals 55 years and older. Of the total 2,213 residential units, approximately 524 units are currently accommodated within the existing Foresthill Community Plan. These permitted units will be redistributed under the Forest Ranch Development Plan.
>
> A mixture of housing options will be provided, ranging from townhomes to rural residential parcels. Also included as part of the Forest Ranch development will be an 18-hole golf course on approximately 195 acres; a recreational vehicle park and equestrian center on 14 acres; a five (5) acre office-professional area; and 1,128 acres of common open space.
>
> The Forest Ranch project is proposed to accommodate a demand for residential housing, with associated recreational and services uses, particularly directed towards buyers 55 years and older.

The County's objectives for the project site are not specifically stated in the 1981 Foresthill General Plan or the 1994 Placer County General Plan. The existing General Plan land use designations express the County's intent with regard to the property. The proposed Foresthill Divide Community Plan (not yet adopted) includes development standards for the "Forest Ranch Specific Plan Area" (Appendix B of the FDCP). The relevant portions of the Development Standards (those provisions related to land use) state the following:

> Under the provisions of the proposed Foresthill Divide Community Plan (FDCP), the subject area would be required to be developed as a specific plan pursuant to the requirements of Sections 17.58.200 [Specific Plans] and 17.52.080 [Development Reserve (-DR)] of the Zoning Ordinance [Chapter 17, Placer County Code] and §66450 *et seq.* of the California Government Code. The

project may also be developed as a Planned Residential Development (PD), subject to the provisions of Sections 17.52.120, 17.54.080, 17.54.090, 17.54.100 and 17.54-110; however, the provisions of the specific plan will take precedence over the development standards and requirements of these sections unless otherwise stated in the specific plan. Because the FDCP is not yet adopted, processing of the project application is not subject to these provisions.

The allowable uses related to any of the following categories are limited as discussed within the subsection following each of the category headings.

Any development proposed within this specific plan area is subject to the specific plan provisions of the Zoning Ordinance (Section 17.58.200, Placer County Code) and the following standards:

A. Residential Uses: A maximum of 533 dwelling units may be considered for the subject property, although this number may not be realized upon project approval due to site constraints, inclusion of buffers and other factors that may limit available developable land. Residential units/lots shall generally be concentrated closer to the community core and densities shall be reduced as development occurs further from the core. In addition, residential units/lots shall be sited so as to:

- Preserve specific environmental, cultural or historical features;
- Provide or protect natural migration/circulation corridors and other important wildlife habitat;
- Create the opportunities for the public to make use of trails and other recreational facilities;
- Minimize visual impacts on surrounding properties as well as public roadways and trails;
- Preserve quality of life characteristics; and,
- Afford more efficiency in building arrangement and the provision of public infrastructure and services.

B. Open Space: Any development proposal for the specific plan area shall provide for the important wildlife habitat, scenic vistas, drainageways, floodplains, forested buffer areas, >30% slopes, etc. [see Figure B-1 in Appendix B of the Draft Foresthill Divide Community Plan] as well as for recreational opportunities for the residents of the project and the public. A minimum of 25% of the project area must be designated and protected as natural open space where disturbance of the vegetation and landforms is limited to only that which is required to provide non-motorized trail access. This natural open space shall be contiguous throughout the project wherever possible in order to provide protected wildlife migration routes, habitat connectivity, and consistent visual buffers. The natural open space shall be held in common ownership by the residents of the project or by an appropriate public entity (land trust, park district, local government, etc.) approved by the County; easements or other non-ownership provisions shall not be considered adequate to satisfy this requirement. Other forms of open space, including open space for active recreational uses, timber management, etc., may be provided in addition to this basic 25% requirement.

C. Recreational Uses: Non-motorized trails shall be provided throughout the project for the recreational use of the residents and the public. Wherever these trails are built, the construction shall comply with the appropriate Placer County Trail Standards [see Figure B-2 of the Draft Foresthill Divide Community Plan and the description of trail construction standards added to the end of this Appendix] and shall include erosion control measures (Best Management Practices [BMPs]), adequate directional signage and minimal grading or disturbance to the natural terrain. Trails (non-motorized and multi-use) shall be constructed to serve as links to surrounding public and private lands and to provide access to existing trail systems and networks, as appropriate. Other recreational development may include golf course improvements, equestrian boarding stables and staging areas, mountain bike courses, fitness circuits and related facilities; however, such facilities shall not be provided within natural open space areas (except for the non-motorized trails discussed above). The project shall be provided with active recreational uses and facilities sufficient to comply with Section 17.54.100(D) of the Placer County Zoning Ordinance [Planned Residential Developments – Recreational Facilities]. These facilities shall be constructed such that the recreational amenities are available concurrent with the occupancy of the equivalent number of residences that produce the demand for the facilities, as determined by the County (or a recreation and parks district serving the area).

D. Environmentally-sensitive Lands: Development impacts on environmentally-sensitive lands, including wetlands, riparian corridors, important wildlife habitat, scenic vistas, erosive soils, >30% slopes, etc., shall be minimized through the use of development setbacks, open-space zoning, open-space easements and other similar measures.

E. Commercial Uses: No commercial uses are permitted within the specific plan area, except in conjunction with and as an accessory to an approved typical golf course clubhouse (such as pro shop, restaurant and bar).

2.4 COMPATIBILITY WITH GENERAL PLAN AND OTHER PLANS AND POLICIES

Placer County General Plan

The existing (1994) Placer County General Plan includes numerous goals and policies relevant to the proposed project. These are presented in Chapter Three of this EIR, with relevant goals and policies listed under each major subject heading.

Foresthill General Plan

The existing (1981) Foresthill General Plan also includes numerous goals and policies relevant to the proposed project. These are presented in Chapter Three of this EIR, with relevant goals and policies listed under each major subject heading.

Foresthill Divide Community Plan

The proposed Foresthill Divide Community Plan (FDCP) includes numerous goals and policies relevant to the proposed project, including some that are directly applicable to the project site.

The Foresthill Divide Community Plan is not yet adopted. However, it has been developed by the Foresthill Divide Community Plan Team and is currently under review for possible adoption. The Plan area is approximately twice the size (109 square miles) of the area encompassed by the 1981 Foresthill General Plan, and includes areas previously subject to the 1994 Placer County General Plan and the 1981 Weimar/Clipper Gap/Applegate General Plan. Relevant draft goals and policies are presented in Chapter Three of this EIR, listed under each major subject heading. However, it is recognized that goals and policies may not be adopted in their current form.

2.5 DESCRIPTION OF PROJECT ALTERNATIVES

The following alternatives are identified and evaluated in Chapter Four of this EIR.

No Project Alternative

In accordance with Section 15126.6(e)(3)(B) of the CEQA Guidelines, the No Project alternative consists of an analysis of the circumstance under which the project does not proceed. The No Project alternative consists of two possibilities: first, that the project site will remain in its present condition and use ("No Project/No Build" alternative); and secondly, that the project site will be developed in accordance with the existing Foresthill General Plan land use designations, existing land divisions and available infrastructure ("No Project/Limited Development" alternative).

In the case of the proposed project, because of the existing Foresthill General Plan land use designations and zoning, failure to proceed with the project would not necessarily mean that the project site would remain in its existing condition. The existing General Plan designates the project site for Forestry and Rural Residential. In addition to the forestry, recreational and related uses permitted in the Forestry designation, the Rural Residential designation allows detached single-family dwellings and secondary dwellings; agricultural uses, equestrian facilities, and limited agricultural support businesses; resource extraction uses; various facilities and services that support residential neighborhoods, such as churches, schools, libraries, child care and medical facilities; and parks and necessary public utility and safety facilities.

The majority of the project site (2,025± acres) is currently zoned Forestry (160-acre minimum lot size). The remainder of the site (591± acres) is zoned Residential-Forestry, Combining a Minimum Building Site of 1 acre, Combining a Planned Development designation of 1.0 dwelling units per acre (RF-B-43, PD-1.0) (see Figure 2-5).

It has been determined that the above described General Plan and Zoning designations would allow development of a maximum of 591 non-age restricted dwelling units on the project site, although the actual number of dwelling units that could be developed would be determined by the type of wastewater disposal and terrain (slope).

Reduced Project, FDCP Alternative

This alternative assumes development in accordance with the proposed Foresthill Divide Community Plan. Appendix B of the proposed Community Plan contains Development

Standards for the Forest Ranch Specific Plan area. The Community Plan and Development Standards require that a specific plan be prepared and would limit the site to a maximum of 533 dwelling units on 1,380 acres. The balance of the 2,615 acre site would be placed in a Forestry, 160 Acre Minimum Parcel Size designation and zoned Timberland Production Zone (TPZ). Residential units and lots would generally be concentrated closer to the core of Foresthill, with densities reduced as development occurs further out.

Significant open space areas would be preserved, with a minimum of 25 percent of the project area designated and protected as natural open space. Trails would be emphasized and natural open space limited to non-motorized access. Open space would be continuous throughout the project area, wherever feasible. Other recreational development may include a golf course, equestrian facilities, mountain bike courses and related facilities. Recreational facilities would be available concurrent with the occupancy of an equivalent number of dwelling units. Setbacks would be used to protect sensitive lands and development would be required to minimize impacts on topography and vegetation. No commercial uses would be permitted, with the exception of a clubhouse in conjunction with a golf course. No recreational vehicle park would be developed. Utilities and public safety services would be provided by existing special districts and the County. Sewer service would be provided in accordance with the determinations of the County Environmental Health Division and might include onsite systems and/or a community treatment system. Architectural and design standards would be applied that emphasize relationship to existing terrain and natural features, views and viewsheds. A homeowners association or similar entity would be formed to ensure compliance with above architectural and design standards.

Reduced Project, Age Restricted Community Only

This Reduced Project Alternative assumes that the entire Forest Ranch development project would be age restricted and would cater only to those 55 years of age or older. The number of residential units would be limited to a maximum of 1,700. These units would be clustered near the golf course and the existing community core, with the remainder of the site remaining in natural open space. The Development Standards described in Appendix B of the proposed Foresthill Divide Community Plan would be applied to the project, including minimum open space requirements and limitations on commercial uses; however, a variety of housing types would be permitted (including attached and detached units) to encourage clustering, affordability and density closer to the core of the community. The equestrian center and 100 unit recreational vehicle park would be retained, consistent with the recreational and retirement orientation of the community.

CHAPTER THREE
ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

3.1 LAND USE

3.1.1 SETTING

The project site is located in the unincorporated community of Foresthill in Placer County. The Foresthill General Plan was adopted by the Placer County Board of Supervisors in 1981 as one of 22 community plans which supplement, and are consistent with, the Placer County General Plan. The Foresthill General Plan was amended in 1995 to add a Public Education component.

The project site is characterized by forest vegetation, relatively level to steep topography (including two canyons) and seasonal drainages. The site is mostly undeveloped, although it has been subject to the effects of past hydraulic mining as well as logging. Most tree cover is second growth. Portions of the property have been reforested, including some trees planted for Christmas tree production. The project site entirely encompasses two landlocked parcels with residences owned by other parties. The site also contains closed mine shaft entrances, unpaved roads and gates, and is crossed by three County roads (Foresthill Road, Yankee Jim's Road and Blackhawk Road).

Property north and west of the project site is owned by the Bureau of Land Management and is undeveloped forest lands. Property to the northeast is a rural residential subdivision. Properties to the east are undeveloped forest lands. South of the project site is historic downtown Foresthill, with commercial and residential uses. There are two developed U.S. Forest Service areas immediately adjacent to the project site. One of these developments is the Administrative Residence Area currently housing employees. The other developed area is the Foresthill Work Center, which is characterized by the Forest Service as industrial in nature. The Forest Service Emergency Response teams are located at this center, as are the Forest Service fleet and barracks. According to correspondence from the Forest Service (see Appendix A), the work center occasionally experiences 24 hour a day activity. Figure 3.1-1 is an existing land use map of the project site and vicinity. Figure 3.1-2 is an aerial photograph of the project site and surrounding area.

The proposed project is a residential and recreation development. The project consists of a General Plan Amendment and Rezoning to allow the following uses (however, the proposed project does not include tentative parcel map(s), tentative subdivision map(s), minor use permits, conditional use permits, or other entitlement applications):

Residential Uses: The applicant currently plans 2,213 residential units, of which approximately 1,700 would be age-restricted (55 years of age and older). The remaining 513 housing units will consist of 216 townhomes and 297 single family detached residential dwellings. A mixture of

housing options is proposed to be provided, from townhomes to rural residential parcels (one dwelling unit/5 acres). Affordable housing units are proposed to be provided in accordance with County policy.

Recreational Uses: The applicant plans an 18-hole golf course, clubhouse and other recreational facilities generally associated with a golf course/retirement community (e.g., restaurants, meeting rooms, swimming pool, driving range). The proposed project also includes an equestrian center to provide for the boarding of horses and a staging area for the project's equestrian trail system. A 100-unit recreational vehicle park is also included in the project. The proposed project includes 17 miles of "community trails" and 0.8 mile of "wilderness trail."

Office and Professional: Approximately 5 acres are proposed to be designated for office and professional uses. For the purpose of this analysis, it was estimated that there would be 19,000 square feet of office and professional uses.

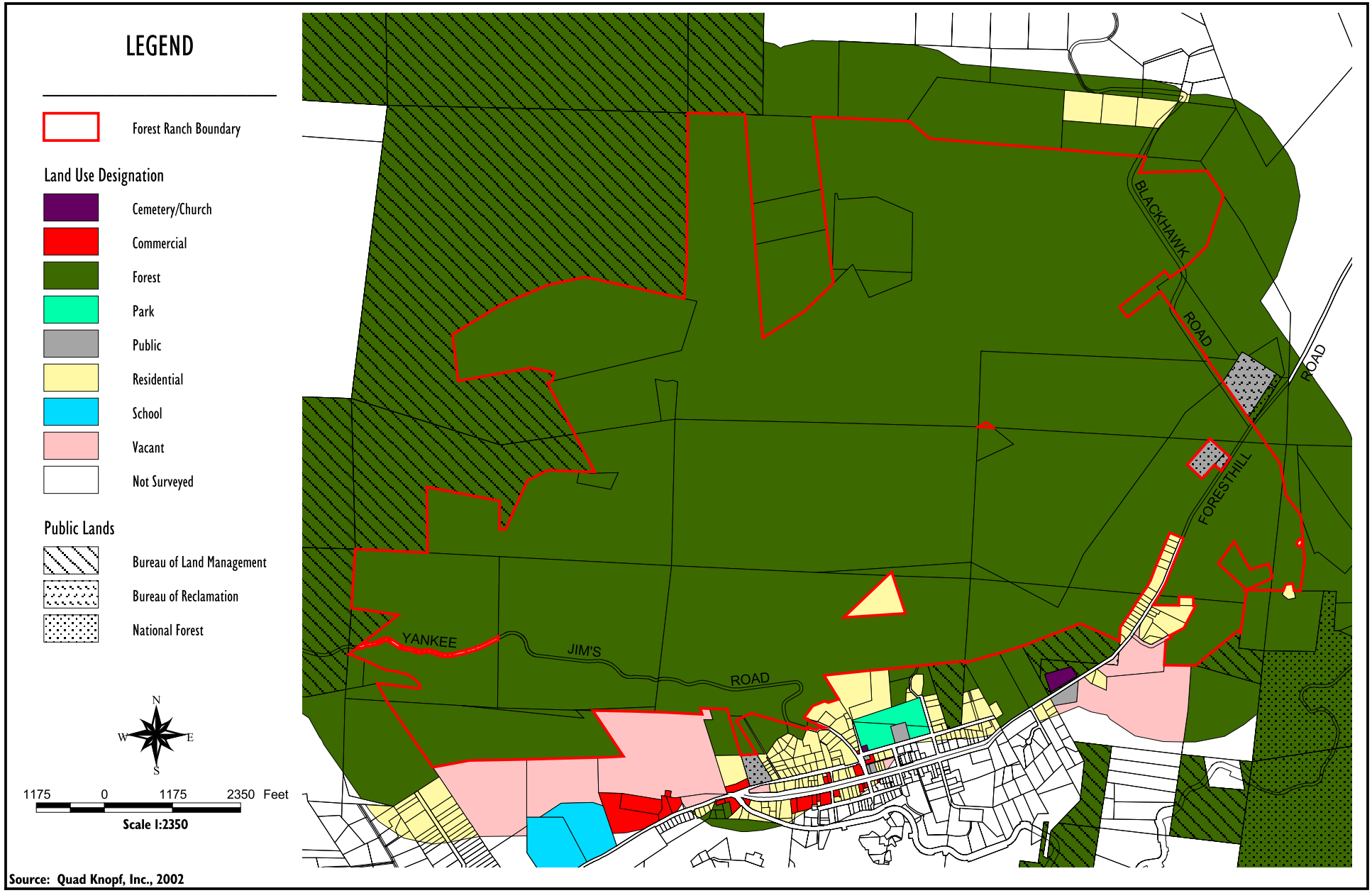
Open Space: Approximately 1,128 acres, or 43% of the project site, is proposed to be maintained as open space to protect sensitive habitats and slopes and to provide project buffering. An additional 7%, or 195 acres, will be developed with the golf course.

Infrastructure Improvements: Major infrastructure improvements include a wastewater treatment facility (proposed to be constructed and operated to State Water Resources Control Board standards), a water system and road improvements.

The existing Placer County General Plan/Foresthill General Plan land use designations for the project site and surrounding properties are shown in Figure 2-6 of Chapter Two. Proposed General Plan land use designations for the project site are shown in Figure 2-7. The existing General Plan land use designations for the project site are Forestry (20 to 160-acre minimum) (2,025± acres) and Rural Residential (1.0 to 2.3 acre minimum) (591± acres). The proposed land use designations that are included in the application are as shown in Table 3.1-1.

Table 3.1-1
Proposed Land Use Designations

Land Use Designations	Acreage	# Units	Units Per Acre	Percentage
RR-5 – Rural Residential	189	37	1/5 acres	7%
RR-2.3 – Rural Residential	71	29	1/2.3 acres	3%
RR-1 – Rural Residential	309	271	1/1 acre	12%
LD-2 – Low Density Residential	190	334	2/1 acre	7%
LD-3 – Low Density Residential	291	698	3/1 acre	11%
MD-4 – Medium Density Residential	140	448	4/1 acre	5%
MD-6 – Medium Density Attached Residential	83	396	6/1 acre	3%
RES – Resort (14 acres)	14			Less than 1%
GC – General Commercial	5			Less than 1%
OS – Greenbelt and Open Space	1,323			50%



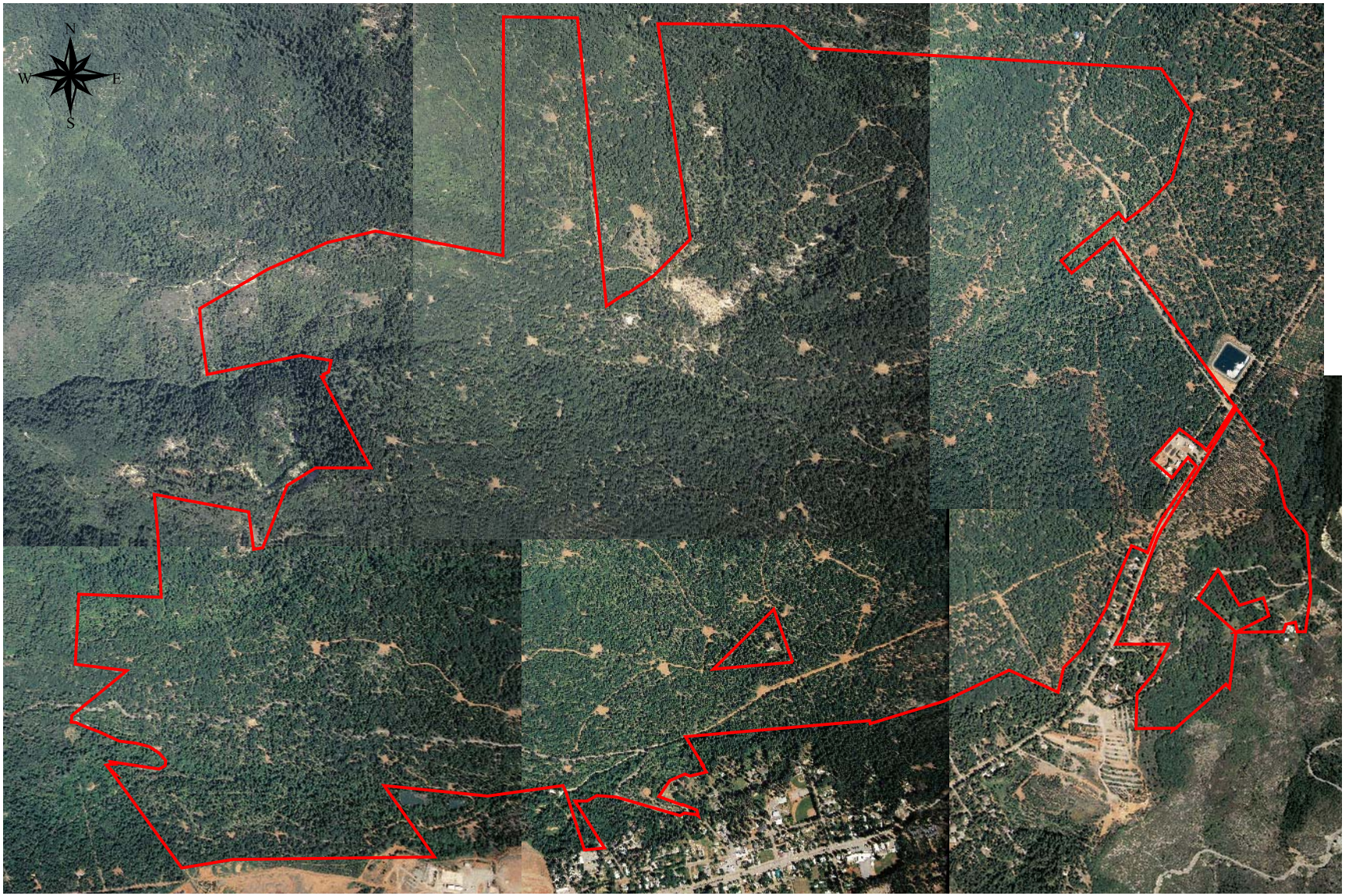
Source: Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

Generalized Land Use

Figure 3.I-1



Source: Foothill Associates, 2002 / Quad Knopf Inc., 2002

Quad Knopf

FOREST RANCH EIR

Aerial Photograph

Figure 3.I-2

Proposed Land Use Designations

The proposed land use designations are defined as follows:

Rural Residential (RR-1, 1 dwelling unit/1 acre; RR-2.3, 1 dwelling unit/2.3 acres; RR-5, 1 dwelling unit/5 acres)

Same definition as above, except for minimum parcel sizes.

Low Density Residential (LD-2, 2 dwelling units/1 acre; LD-3, 3 dwelling units/1 acre)

This designation is applied to urban or urbanizing areas suitable for single-family residential neighborhoods, with individual homes on lots ranging in area from 10,000 square feet to one acre. Typical land uses allowed include: detached single-family dwellings, secondary dwellings, and residential accessory uses; churches, schools, parks, golf courses, child care facilities; and necessary public utility and safety facilities.

Medium Density Residential (MD-4, 4 dwelling units/acre; MD-6, 6 dwelling units/acre)

This designation is applied within urban areas to single-family residential neighborhoods where some lower-density multi-family housing may also be appropriate. Typical land uses allowed include: detached and attached single-family dwellings, secondary dwellings, smaller-scale multi-family dwellings (e.g., duplexes, triplexes and fourplexes), and residential accessory uses; churches, schools, parks, golf courses, child care facilities; and necessary public utility and safety facilities.

Resorts and Recreation (REC)

This designation is applied to mountain, water-oriented, and other areas of existing and potential public and commercial recreational use, where such use can occur without conflict with surrounding rural and/or agricultural uses. Typical land uses allowed include: parks, camping facilities, ski and other resort facilities including residential, transient lodging, and commercial uses in support of such facilities, necessary public utility and safety facilities, and similar and compatible uses.

General Commercial (GC)

This designation identifies a variety of urban commercial areas including shopping districts, service commercial areas, office areas, and neighborhood-serving commercial centers. This designation is applied within urban areas where the commercial development will be near major transportation corridors, and within downtowns, village centers, or other major commercial areas or centers. Typical land uses allowed include: all types of retail stores, restaurants, and shopping centers (limited in extent where necessary to maintain compatibility with adjoining land uses, such as in a neighborhood commercial center), offices, service commercial uses, recreation, education, and public assembly uses, medical services, child care facilities, necessary public utility and safety facilities, and similar and compatible uses. Developments including

multi-family dwellings as the primary land use or as part of a mixed-use project may also be allowed where appropriate.

Greenbelt and Open Space (OS)

This designation is intended to identify and protect important open space lands within Placer County, including: national forest, Bureau of Land Management lands or other public lands specifically reserved or proposed for watershed preservation, outdoor recreation, wilderness or wildlife/environmental preserves; sites or portions of sites with natural features such as unique topography, vegetation, habitat, or stream courses; areas providing buffers between different, potentially incompatible types of land use such as intensive agricultural operations and residential uses, hazardous areas and/or land uses and areas with concentrations of population, and residential areas and important community facilities that may be viewed as nuisances by residents, such as the Western Regional Sanitary Landfill; and areas intended to preserve community identity by providing separation between communities. Typical land uses allowed within Greenbelt and Open Space areas are limited to low-intensity agricultural and public recreational uses, with structural development being restricted to accessory structures necessary to support the primary allowed uses, and necessary public utility and safety facilities.

Existing Placer County General Plan/Foresthill General Plan Land Use Designations

The existing General Plan land use designations are defined as follows:

Forestry (20 to 160-acre minimum)

The main emphasis of this [Foresthill General] plan is to preserve the valuable timber resources and general rural character of the Foresthill area. The recommended range of parcel sizes of 4.6 to 160 acre minimum for the Forest and Forest Residential districts reflects this desire to protect timber producing property from dense residential encroachment while also serving to maintain a strong rural identity in the area. Consideration was also given to soil types, slope, geology, water quality, and sewage disposal in determining the recommended parcel sizes. The clustering of housing units is encouraged in the Forest and Forest Residential designation to take advantage of available services and maximize open space areas. A more detailed analysis of land capabilities is performed as part of the precise zoning process when exact minimum parcel sizes are established for all properties within the plan area.

Rural Residential (1.0 to 2.3 acre minimum)

This designation is applied to areas generally located away from cities and unincorporated community centers, in hilly, mountainous, and/or forested terrain and as a buffer zone where dispersed residential development on larger parcels would be appropriate, and compatible with smaller-scale farming and ranching operations. Typical uses allowed include: detached single-family dwellings and secondary dwellings; agricultural uses such as crop production and grazing, equestrian facilities, and limited agricultural support businesses such as roadside stands, farm equipment and supplies sales; resource extraction uses; various facilities and services that

support residential neighborhoods, such as churches, schools, libraries, child care and medical facilities; and parks and necessary public utility and safety facilities.

Proposed Foresthill Divide Community Plan Land Use Designations

The draft Foresthill Divide Community Plan (FDCP) proposed land use designations for the project site are Development Reserve for 1,300± acres and Forestry (160 acre minimum) on most of the remainder of the site. Small portions of the project site are designated Ag/Timberland (1 dwelling unit/160 ac.) and Low Density Residential (1 dwelling unit/1 acre). The proposed FDCP land use designations for the project site are defined as follows:

Development Reserve (DR)

The Development Reserve designation is intended to provide for the future development of limited residential, commercial or industrial uses in areas that may not be prepared at the time of FDCP adoption to accommodate development until additional infrastructure or resources have been provided, or until additional population growth has occurred, or may require special treatment as provided for in Appendix B of the FDCP.

Forestry (FOR) (160 acre minimum)

The Forestry designation is applied to portions of the mountainous areas of the FDCP area where the primary land uses relate to the growing and harvesting of timber and other forest products, together with public and commercial recreational uses. Typical uses allowed include: crop production; forestry; grazing; fisheries and game preserves; equestrian facilities; and camping. Residential uses are not allowed.

Agriculture (AG)/Timberland (T) (160 acre minimum)

This designation identifies land for the production of food and fiber, including areas of prime agricultural soils, and other productive and potentially productive lands where commercial agricultural uses can exist without creating conflicts with other land uses, or where potential conflicts can be mitigated. Typical land uses allowed include: crop production, orchards and vineyards, grazing, pasture and rangeland, hobby farms; other resource extraction activities; facilities that directly support agricultural operations, such as agricultural products processing; and necessary public utility and safety facilities. Allowable residential development in areas designated Agriculture includes one principal dwelling and one secondary dwelling per lot, caretaker/employee housing, and farmworker housing.

The designation is also applied to mountainous areas of the County where the primary land uses relate to the growing and harvesting of timber and other forest products, together with limited, low-intensity public and commercial recreational uses. Typical land uses allowed include: all commercial timber production operations and facilities; agricultural operations where soil and slope conditions permit; mineral and other resource extraction operations; recreation uses such as incidental camping, private, institutional and commercial campgrounds (but not recreational vehicle parks); and necessary public utility and safety facilities. Allowable residential

development in areas designated Timberland includes one principal dwelling and one secondary dwelling per lot and caretaker/employee housing.

Low Density Residential (1 dwelling unit/1 ac.)

This designation is applied to urban or urbanizing areas suitable for single-family residential neighborhoods, with individual homes on lots ranging in area from 10,000 square feet to one acre. Typical land uses allowed include: detached single-family dwellings, secondary dwellings, and residential accessory uses; churches, schools, parks, golf courses, child care facilities; and necessary public utility and safety facilities.

Rural Residential (1 dwelling unit/10 ac.)

This designation is applied to areas generally located away from cities and unincorporated community centers, in hilly, mountainous, and/or forested terrain and as a buffer zone where dispersed residential development on larger parcels would be appropriate, and compatible with smaller-scale farming and ranching operations. Typical uses allowed include: detached single-family dwellings and secondary dwellings; agricultural uses such as crop production and grazing, equestrian facilities and limited agricultural support businesses such as roadside stands, farm equipment and supplies sales; resource extraction uses; various facilities and services that support residential neighborhoods, such as churches, schools, libraries, child care and medical facilities; and parks and necessary public utility and safety facilities.

Development Standards "Forest Ranch" Specific Plan Area

The Draft FDCP also includes Appendix B, which consists of the following development standards that address the project site:

> The "Forest Ranch" (Pomfret Estate) specific plan area consists of approximately 1300 acres lying north of and adjacent to historic downtown Foresthill. The area is generally bounded by Devil's Canyon, Yankee Jim's Road and the Foresthill townsite on the south, by Foresthill Road and Blackhawk Road on the east, by Second Brushy Canyon on the north and by Smith's Point on the west [see Specific Plan Area map, Figure B-1 of the Draft FDCP]. Under the provisions of the Foresthill Divide Community Plan (FDCP), the subject area must be developed as a specific plan pursuant to the requirements of Sections 17.58.200 [Specific Plans] and 17.52.080 [Development Reserve (-DR)] of the Zoning Ordinance [Chapter 17, Placer County Code] and §66450 *et seq.* of the California Government Code. The project may also be developed as a Planned Residential Development (PD), subject to the provisions of Sections 17.52.120, 17.54.080, 17.54.090, 17.54-100 and 17.54.110; however, the provisions of the specific plan will take precedence over the development standards and requirements of these sections unless otherwise stated in the specific plan.
>
> The allowable uses related to any of the following categories are limited as discussed within the subsection following each of the category headings.

Any development proposed within this specific plan area is subject to the specific plan provisions of the Zoning Ordinance (Section 17.58.200, Placer County Code) and the following standards:

A. Residential Uses: A maximum of 533 dwelling units may be considered for the subject property, although this number may not be realized upon project approval due to site constraints, inclusion of buffers and other factors that may limit available developable land. Residential units/lots shall generally be concentrated closer to the community core and densities shall be reduced as development occurs further from the core. In addition, residential units/lots shall be sited so as to:

- Preserve specific environmental, cultural or historical features;
- Provide or protect natural migration/circulation corridors and other important wildlife habitat;
- Create the opportunities for the public to make use of trails and other recreational facilities;
- Minimize visual impacts on surrounding properties as well as public roadways and trails;
- Preserve quality of life characteristics; and,
- Afford more efficiency in building arrangement and the provision of public infrastructure and services.

B. Open Space: Any development proposal for the specific plan area shall provide for the preservation or creation of significant open space areas (wetlands, riparian corridors, meadows, important wildlife habitat, scenic vistas, drainageways, floodplains, forested buffer areas, >30% slopes, etc. [see Figure B-1.]) as well as for recreational opportunities for the residents of the project and the public. A minimum of 25% of the project area must be designated and protected as natural open space where disturbance of the vegetation and landforms is limited to only that which is required to provide non-motorized trail access. This natural open space shall be contiguous throughout the project wherever possible in order to provide protected wildlife migration routes, habitat connectivity, and consistent visual buffers. The natural open space shall be held in common ownership by the residents of the project or by an appropriate public entity (land trust, park district, local government, etc.) approved by the County; easements or other non-ownership provisions shall not be considered adequate to satisfy this requirement. Other forms of open space, including open space for active recreational uses, timber management, etc., may be provided in addition to this basic 25% requirement.

C. Recreational Uses: Non-motorized trails shall be provided throughout the project for the recreational use of the residents and the public. Wherever these trails are built, the construction shall comply with the appropriate

Placer County Trail Standards [see Figure B-2 of the Draft FDCP and the description of trail construction standards added to the end of Appendix B of the Draft FDCP] and shall include erosion control measures (Best Management Practices [BMPs]), adequate directional signage and minimal grading or disturbance to the natural terrain. Trails (non-motorized and multi-use) shall be constructed to serve as links to surrounding public and private lands and to provide access to existing trail systems and networks, as appropriate. Other recreational development may include golf course improvements, equestrian boarding stables and staging areas, mountain bike courses, fitness circuits and related facilities; however, such facilities shall not be provided within natural open space areas (except for the non-motorized trails discussed above). The project shall be provided with active recreational uses and facilities sufficient to comply with Section 17.54.100(D) of the Placer County Zoning Ordinance [Planned Residential Developments–Recreation Facilities]. These facilities shall be constructed such that the recreational amenities are available concurrent with the occupancy of the equivalent number of residences that produce the demand for the facilities, as determined by the County (or a recreation and parks district serving the area).

D. Environmentally-Sensitive Lands: Development impacts on environmentally-sensitive lands, including wetlands, riparian corridors, important wildlife habitat, scenic vistas, erosive soils, >30% slopes, etc., shall be minimized through the use of development setbacks, open-space zoning, open-space easements and other similar measures.

E. Grading/Revegetation: New development shall minimize its impact on existing topography and vegetation. Only native or endemic tree, brush and grass species may be used for revegetation of disturbed areas. Soil and/or vegetation disturbance shall be limited to only that area required for construction or access purposes, as determined by the County.

1) Beyond the purely functional and environmental aspects of grading and drainage protective measures, the aesthetic goal is to preserve the natural landforms to the greatest degree possible. Where these existing landforms must be altered as a part of the development's construction process, the altered areas shall be re-created in a manner that replicates the natural conditions extant prior to the disturbance.
2) On some particularly sensitive sites, grading may not be allowed to occur. Every attempt must be made to minimize cuts and fills during the construction of homes and other structures.
3) Property owners are responsible for restoring all disturbed areas on their homesite or development site, unless such areas are covered with approved impervious surfaces (buildings, paving, hardscape,

etc.). Restoration may include re-grading, revegetation/landscaping in approved locations.

F. Boundaries: The boundaries of the specific plan area may undergo minor modifications by the Planning Commission in order to respond to updated information, new data or for other reasons consistent with this Community Plan. Such modifications shall be made only in conjunction with public hearings to consider a development project pursuant to the provisions of the Zoning Ordinance.

G. Commercial Uses: No commercial uses are permitted within the specific plan area, except in conjunction with and as an accessory to an approved typical golf course clubhouse (such as pro shop, restaurant and bar).

H. Services and Infrastructure: Residential development within the specific plan area shall be served by the following entities (or such other service providers as are deemed to be appropriate and are specifically approved by the County):

- The Foresthill Public Utility District (domestic water);
- The Foresthill Fire Protection District (structural fire protection/emergency medical response services);
- The Placer County Sheriff's Department (police protection);
- The Foresthill Safety Club (ambulance/lifesaving services);
- The California Department of Forestry & Fire Protection [CDF] (wildland fire protection).

Roads shall be maintained by Placer County, by a Community Services District, or by an appropriate private entity (Homeowners' Association, etc.) as approved by the County. Trails shall be maintained by a private entity approved by the County (although this provision would not preclude an arrangements whereby the County could maintain trails in the project).

Sewage disposal shall be provided according to a plan approved by the Placer County Environmental Health Services [EHS].

A Services and Infrastructure Plan that addresses the phasing of improvements, how connections are made among the various phases and realistic implementation measures shall be submitted to, reviewed and approved by Placer County prior to recordation of the first final subdivision map on the project or the issuance of any building permits in conjunction with the project.

I. Architectural/Design Standards: [These are presented in Section 3.2 of this EIR.]

J. Development Guidelines: Residential development within the specific plan area shall be controlled by way of comprehensive Conditions, Covenants & Restrictions (CC&Rs), environmental guidelines and strict architectural standards that address aesthetic concerns, water quality, energy conservation, fire protection, and environmental issues. Environmental guidelines shall include such concepts as recycling of materials, preservation of open space, application of conservation measures, revegetation, wildlife habitat enhancement and the utilization of appropriate U.S. Green Building Council L.E.E.D.'s Standards.

K. Implementation: A Homeowner's Association or other mechanism approved by Placer County shall be put in place to insure long-term implementation of these standards. The Homeowner's Association (HOA) shall be empowered to implement and monitor the Architectural & Design Standards. The HOA cannot be dissolved without the written approval of Placer County.

Zoning

The California Board of Forestry and the Placer County Board of Supervisors approved a rezoning application in 1993 that changed the zoning from TPZ to Forestry (160-acre minimum lot size) on approximately 2025 acres of the site. That zone change became effective June 2, 2003. The remainder of the site (591± acres) is zoned Residential-Forestry, Combining a Minimum Building Site of 1 acre, Combining a Planned Development designation of 1.0 dwelling units per acre (RF-B-43, PD-1.0) (see Figure 2-5 of Chapter Two).

Information on the 1993 rezoning is available from the staff report prepared by the Placer County Planning Department ("Pomfret Estates" (Foresthill Associates) Rezoning (REA-834)), from which the following excerpts are cited:

> In 1976, the California legislature passed and the governor signed the Forest Practices Act which provided for, among other things, mandatory inclusion of prime timber production lands within the "Timberland Preserve" zone. In 1977, those timber-producing lands which had been covered by Williamson Act (California Land Conservation Act or "Agricultural Preserves") contracts automatically converted to the Timberland Preserve (TPZ) zone. Provisions were made for property owners to request that some or all of their timberlands be left out of the TPZ designation. Approximately 570 acres of the total Pomfret holdings were excluded from the TPZ zone district when it was implemented in 1977. The majority of those excluded acres were designated for single family residential use on one-acre lots, with a Planned Unit Development designation of one dwelling unit per acre (FR-B-43, LUI 1.0). The balance of the lands were placed within the TPZ zone. Section 51120 of the California Government Code provides for the rezoning process being used in this instance. If the Board of Supervisors approves the requested rezoning, a ten-year countdown period is

initiated which must run its full term before the approved new zoning designation takes effect…

…Both the Timberland Preserve (TPZ) and Forestry zone districts are natural resource labels used to designate those areas of the County which are best suited to the long-term generation of timber products. Prior to 1977, Placer County utilized the Forestry zone district to designate and protect timber croplands; now both types of zoning are used for much the same reasons. These two zone districts differ very little in allowable uses and both are consistent with the General Plan designation of "Forestry"…The TPZ zone district currently permits little that is not also allowed within the Forestry zone. The Forestry zone does permit some uses (campgrounds, commercial explosives manufacture, golf courses, and public utility storage yards) which are not allowed in the TPZ district; however, each of those uses may only occur after the County has issued a conditional use permit. State law and local ordinances require a legally-noticed public hearing before a conditional use permit can be approved, thereby providing for input from citizens in the vicinity of the proposed project. Due to the ten-year countdown period, as well as the public notice protection provided in the law, the staff feels that the requested rezoning is nearly inconsequential, from a land use standpoint…

The staff recognizes, and the applicant has stated, that the issue of appropriate land use designations for the subject property should properly be addressed with the update of the Foresthill General Plan. The implication is that once the TPZ designation is removed it would be somewhat easier to rezone the property for some other use in the future, thereby permitting additional development activity. The staff wishes to emphasize that the Forestry, 160 acre minimum, designation is a resource protection zone comparable to the TPZ designation. The staff support for this rezoning in no way implies that the property is suitable for any other use or zoning designation, now or in the foreseeable future.

The proposed zoning districts requested in the application are as shown in Table 3.1-2 (see Figure 2-8).

Table 3.1-2
Proposed Zoning

Proposed Zoning	Acreage	# Units
RF-5- RF-B-X, PD 0.2	189	27
RF-2.3 – RF-B-X, 2.3 ac. min., PD 0.44	71	20
RF-1 – RF-B-43, PD 1.0	309	271
RS-2 – RS, PD 2.0	190	334
RS-3 – RS, PD 3.0	291	698
RS-4 – RS, PD 4.0	140	448
RS-6 – RS, PD 6.0	83	396
RES – Resort	14	

Proposed Zoning	Acreage	# Units
OP – Office and Professional	5	
OS – Open Space	1,323	

As provided in the Placer County Zoning Ordinance, the proposed equestrian facility would require approval of a Minor Use Permit in the Resort (RES) district, as provided in Section 17.56.050 of the Ordinance. The proposed recreational vehicle park would require approval of a Conditional Use Permit in the RES district. The proposed golf course, restaurant and bar would require approval of a Conditional Use Permit in the Greenbelt and Open Space district.

Under the Draft FDCP and proposed rezoning, the project site is proposed (and currently under consideration) to be zoned as follows (see Figure 3.1-3):

TPZ
RF-B-X, 160 ac. min.
RF

U.S. Forest Service

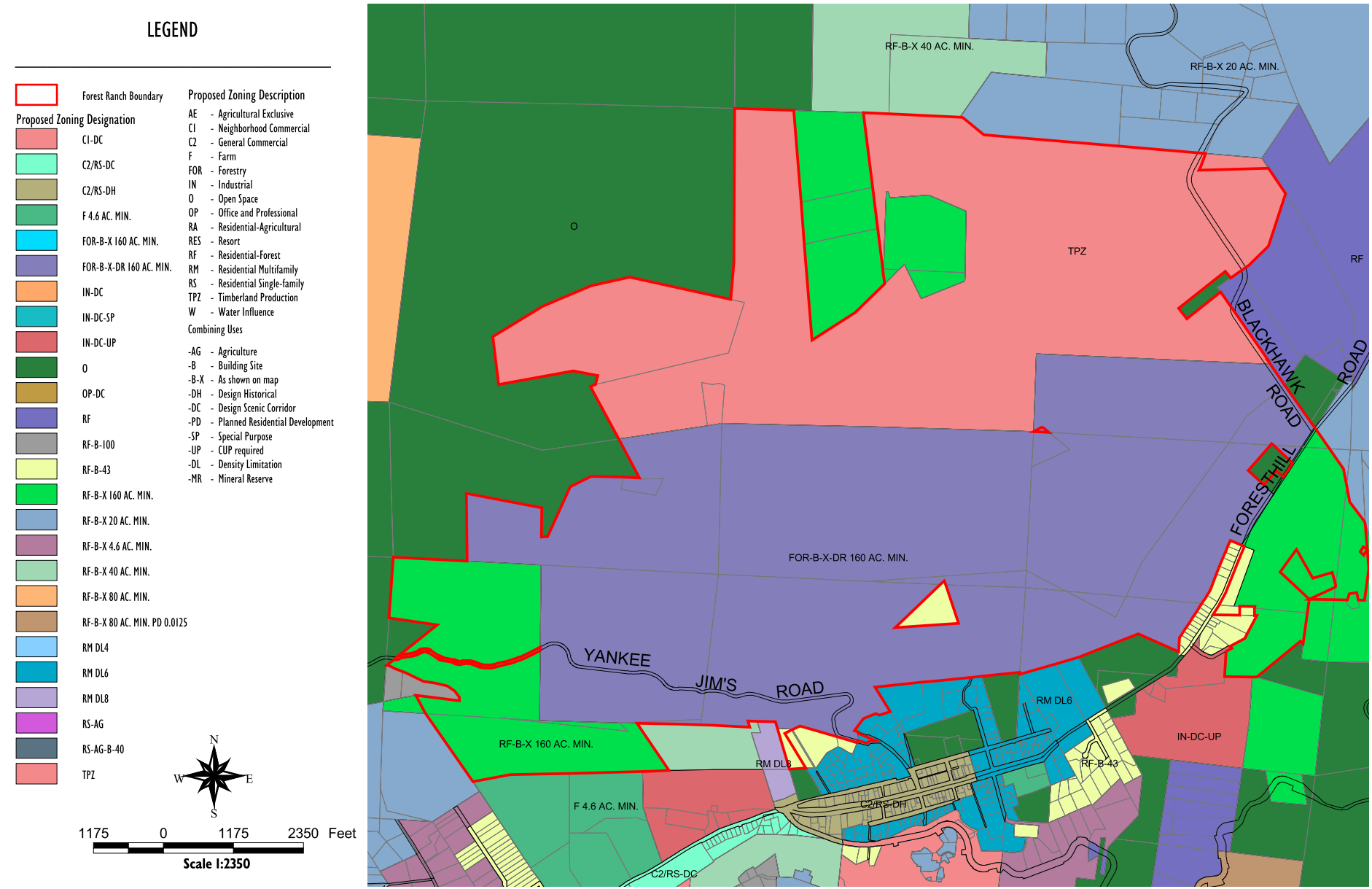
The Sierra Nevada Forest Plan Amendment (referred to as the "Framework") currently guides National Forest planning for portions of the Sierra Nevada. The Framework provides for threat and defense protection areas. The Framework was prepared under the Multiple-Use Sustained-Yield Act (MUSYA), the Forest and Rangeland Renewable Resources Planning Act of 1974 as amended by the National Forest Management Act (NFMA), the 1982 implementing regulations of the NRMA, and the National Environmental Policy Act (NEPA) and its implementing regulations. The NFMA requires each Forest Supervisor to develop a plan that directs management activities on the National Forest. The Framework addresses and sets goals for five problem areas in the Sierra Nevada region, as follows:

- Old forest ecosystems and associated species: Protect, increase, and perpetuate old forest ecosystems and provide for the viability of native plant and animal species associated with old forest ecosystems.

- Aquatic, riparian, and meadow ecosystems and associated species: Protect and restore aquatic, riparian, and meadow ecosystems and provide for the viability of native plant and animal species associated with these ecosystems.

- Fire and fuels: Manage fire and fuels in a consistent manner across the national forests, coordinate management strategies with other ownerships, integrate fire and fuels management objectives with other natural resource management objectives, address the role of wildland fire, and set priorities for fire and fuels management actions.
- Noxious weeds: Reduce and, where possible, reverse the spread of noxious weeds.

- Lower westside hardwood forest ecosystems: Maintain and enhance hardwood forest ecosystems in the lower westside of the Sierra Nevada.



Source: Placer County Planning Department, 2002 Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

Proposed FDCP Rezoning

Figure 3.I-3

(U.S. Forest Service, Decision for Appeals of the Record of Decision for the Sierra Nevada Forest Plan Amendment and its Final Environmental Impact Statement, November 2001.)

Placer County General Plan Policies

Residential Land Use

1.B.1. The County shall promote the concentration of new residential development in higher-density residential areas located along major transportation corridors and transit routes.

1.B.2. The County shall encourage the concentration of multi-family housing in and near downtowns, village centers, major commercial areas, and neighborhood commercial centers.

1.B.3. The County shall encourage the planning and design of new residential subdivisions to emulate the best characteristics (e.g., form, scale, and general character) of existing, nearby neighborhoods.

1.B.4. The County shall ensure that residential land uses are separated and buffered from such major facilities as landfills, airports, and sewage treatment plants.

1.B.5. The County shall require residential project design to reflect and consider natural features, noise exposure of residents, visibility of structures, circulation, access, and the relationship of the project to surrounding uses. As a result, the maximum density specified by General Plan designations or zoning for a given parcel of land may not be realized.

1.B.6. The County shall require new subdivided lots to be adequate in size and appropriate in shape for the range of primary and accessory uses designated for the area.

1.B.7. The County shall require multi-family developments to include private, contiguous, open space for each dwelling.

1.B.8. The County shall require residential subdivisions to be designed to provide well-connected internal and external street and pedestrian systems.

1.B.9. The County shall discourage the development of isolated, remote, and/or walled residential projects that do not contribute to the sense of community desired for the area.

1.B.10. The County shall require that all residential development provide private and/or public open spaces in order to insure that each parcel contributes to the adequate provision of light, air, and open space.

1.D.1. The County shall require that new commercial development be designed to encourage and facilitate pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed primarily to serve vehicular circulation.

1.D.2. The County shall require new commercial development to be designed to minimize the visual impact of parking areas on public roadways.

1.G.2. The County shall strive to have new recreation areas located and designed to encourage and accommodate non-automobile access.

1.G.3. The County shall continue to require the development of new recreational facilities as new residential development occurs.

1.I.1. The County shall require that significant natural, open space, and cultural resources be identified in advance of development and incorporated into site-specific development project design. The Planned Residential Developments (PDs) and the Commercial Planned Development (CPD) provisions of the Zoning Ordinance can be used to allow flexibility for this integration with valuable site features.

1.I.2. The County shall require that development be planned and designed to avoid areas rich in wildlife or of a fragile ecological nature (e.g., areas of rare or endangered plant species, riparian areas). Alternatively, where avoidance is infeasible or where equal or greater ecological benefits can be obtained through off-site mitigation, the County shall allow project proponents to contribute to off-site mitigation efforts in lieu of on-site mitigation.

Foresthill General Plan Goals and Policies

Land Use Plan

Goal 1: To preserve and enhance the rural character of the Foresthill area.

1. Encourage higher density areas in those locations that are consistent with neighboring land uses and maintain the existing character of the area.

2. Maintain large lot development where urban services are not available.

Goal 2: To maintain and where possible increase forestry activities on lands conducive to forestry uses.

1. Require large parcel sizes in productive forestry areas to both preserve and protect forestry activities.
2. Encourage Timber Preserve Zoning where appropriate.

3. Encourage the Planned Unit Development concept to maximize open space areas.

Goal 3: To provide a pattern of commercial growth that meets the needs of the Foresthill residents as well as those visiting and recreating, and also reflects the rural character of the area.

1. Maintain the primary commercial center in the existing downtown area.

2. Discourage strip commercial along Auburn-Foresthill Road.

Foresthill Divide Community Plan Goals and Policies

Land Use

3.B.1-2 The FDCP shall identify where development will be accommodated and where public infrastructure and services will be provided. This pattern shall promote the maintenance of the distinctive characteristics that make up the Foresthill Divide.

3.B.1-4 Provide land use designations which protect existing land uses and discourage leapfrog development.

3.B.1-7 Higher density development should be located closer to the downtown area.

3.B.1-9 The County shall permit only low-intensity forms of development in areas with sensitive environmental resources or where natural or human-caused hazards are likely to pose a significant threat to health, safety, or property.

3.B.1-10 Establish guidelines for development of the Pomfret Estate (Forest Ranch) property.

3.B.2-2 The County shall encourage the retention of natural features as buffers between different, potentially incompatible uses as well as serving to preserve the rural mountain character of the area.

Goal 3.B.3: Provide residential development which is compatible with existing land uses, complements the rural surroundings, reflects the character and diversity of existing residential land uses, provides trails and open space, and promotes a sense of community.

3.B.3-1 Residential development shall be designed so as to maintain and preserve the historic and rural forested character and natural resources of the Foresthill Divide.

3.B.3-2 The County shall encourage the planning and design of new residential subdivisions to emulate the best characteristics (e.g., form, scale, and general character) of existing, nearby neighborhoods.

3.B.3-3 The County shall require that significant natural, open space and cultural resources be identified in advance of development and incorporated into site-specific development project design.

3.B.3-4 The County shall ensure that residential development retains natural features as buffers to separate different, potentially incompatible land uses such as agricultural operations, landfills, quarries and treatment plants.

3.B.3-5 The County shall not approve the development of isolated, remote, gated and/or walled residential projects.

3.B.3-6 In the preparation of subdivision design, natural features, noise exposures to residents, visibility of structures, circulation, access, maintenance of rural quality, and the relationship of the project to surrounding land uses shall be considered. Appropriate subdivision densities or total numbers of lots will be determined by these and other factors. In some instances, the maximum number of lots indicated by the land use designation or zoning on a given parcel of land may not be realized once other factors are considered.

3.B.3-7 The County shall require that all residential development provide private and/or public open spaces.

3.B.3-8 The County shall require the development and maintenance of new public/community recreational facilities as new residential development occurs.

3.B.3-10 Lots in subdivisions shall be of adequate size and appropriate shape for the range of primary and accessory uses for which the area is designated. Further, the subdivision shall not:

- Create the need for variances to ordinance requirements such as setbacks, lot size minimums, height maximums, length-to-width ratios, etc.
- Create abutting lots which have two front yards and no rear yard, unless special provisions consistent with these guidelines have been made to provide for sound attenuation.
- Create flag lots within the subdivision.

3.B.4-1 The County shall require residential subdivisions to be designed to provide well-connected public internal and external street and multi-use trail systems.

3.B.6-1 The County shall require that additional commercial development be limited to the Core Area, the primary commercial area of the community. Those parcels historically designated for commercial use shall retain the commercial designation.

3.B.6-2 The County shall require that new commercial development be designed to encourage and facilitate pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed primarily to serve vehicular circulation.

3.1.2 IMPACTS AND MITIGATION MEASURES

Impact Evaluation Criteria

Based upon common standards of land use compatibility, and on consideration of Appendix G of the State CEQA Guidelines, the proposed project would normally be considered to have a significant land use impact if it would:

- Physically divide an established community;

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the Placer County General Plan, and Foresthill General Plan, and potentially the Foresthill Divide Community Plan) adopted for the purpose of avoiding or mitigating an environmental effect;

- Conflict with any applicable habitat conservation plan or natural community conservation plan.

Development which is inconsistent with relevant Placer County General Plan and Foresthill General Plan policies and the Placer County Zoning Ordinance should be considered potentially significant. Because the Foresthill Divide Community Plan is not yet adopted, but has been developed by the Foresthill Divide Community Plan Team and is currently under review for possible adoption, development which is inconsistent with relevant proposed policies may be considered potentially significant, although it is recognized that policies may not be adopted in their current form.

Impact 3.1.1 Consistency of the proposed Forest Ranch project with the land use designations of the 1981 Foresthill General Plan.

The existing 1981 Foresthill General Plan designates the project site for Forestry (20 – 160 acre minimum) (2,025± acres) and Rural Residential (1.0 – 2.3 acre minimum) (591± acres). These existing land use designations would allow development of a maximum of 591 dwelling units on the project site, although the actual number of dwelling units that could be developed would be determined by the type of wastewater disposal and terrain (slope). The existing land use designations do not provide for development of a recreational vehicle park, golf course, professional offices, or equestrian center. Therefore, the proposed density of residential use and the proposed recreational and office uses are inconsistent with the land use designations of the 1981 Foresthill General Plan. However, the project applicants have requested a General Plan Amendment to resolve these inconsistencies. Approval of the requested General Plan Amendment would result in a ***less than significant impact***.

Mitigation Measure

No additional mitigation measures are required.

Impact 3.1.2 Consistency of the proposed Forest Ranch project with the land use and community development policies of the 1981 Foresthill General Plan.

The relevant policies of the Foresthill General Plan Land Use Plan are listed above and are presented here for ease of reference:

Goal 1: To preserve and enhance the rural character of the Foresthill area.

1. Encourage higher density areas in those locations that are consistent with neighboring land uses and maintain the existing character of the area.

2. Maintain large lot development where urban services are not available.

The residential component of the proposed project ranges in density from one dwelling unit per 5 acres to 6 dwelling units per acre. The higher density residential uses are generally proposed to be located in the interior and along the northerly and westerly boundaries of the golf course, and are generally not adjacent to existing development in Foresthill. However, one area of proposed RS-6 is located in the southwesterly portion of the project site, adjacent to the former Mill site and the site of the planned new high school. The low density residential uses are generally proposed to be located closer to the project site boundaries and adjacent uses. The rural residential uses are generally proposed to be located in more remote areas of the project site, generally in the northeasterly portion of the site.

The location of proposed residential uses appears to be generally consistent with these General Plan policies. An urban level of services will need to be provided to serve the entire site (with the exception of wastewater disposal, which will be provided by individual septic systems for the Rural Residential areas, which are in the more remote portions of the site). Low and Medium Density Residential uses are suitable in proximity to downtown Foresthill and along Foresthill Road, and the Medium Density Residential uses within and adjacent to the golf course will not be visible from offsite.

Goal 2: To maintain and where possible increase forestry activities on lands conducive to forestry uses.

1. Require large parcel sizes in productive forestry areas to both preserve and protect forestry activities.

2. Encourage Timber Preserve Zoning where appropriate.

3. Encourage the Planned Unit Development concept to maximize open space areas.

The project site is conducive to forestry uses, as evidenced by the prior TPZ zoning and the timber harvesting that has occurred on the site. The decision to remove the project site from TPZ has therefore already been made (although, as indicated in the staff report cited above, the Forestry zone was considered basically equivalent to the TPZ zone, and the change in land use was considered "inconsequential.") The Planned Development combining designation already

exists on the remaining 591± acres of the project site, and is proposed to remain on the residential zoned portions of the site, and the proposed project provides for 1,128 acres to remain in open space (not including the golf course and other recreational uses). The proposed project, taking into consideration decisions already made affecting the property, therefore appears to be generally consistent with these General Plan policies.

Goal 3: To provide a pattern of commercial growth that meets the needs of the Foresthill residents as well as those visiting and recreating, and also reflects the rural character of the area.

1. Maintain the primary commercial center in the existing downtown area.

2. Discourage strip commercial along Auburn-Foresthill Road.

The proposed professional office and recreational uses are located within the project site, and are not located along Foresthill Road. The types of uses proposed would not tend to compete or draw business away from the existing downtown area. The proposed project therefore appears to be generally consistent with these General Plan policies.

Because the proposed project appears to be generally consistent with the goals and policies of the Foresthill General Plan, this impact is considered ***less than significant.***

Mitigation Measure

No mitigation measures are required.

Impact 3.1.3 Land use conflicts between the proposed Forest Ranch project and existing and planned land uses in the vicinity of the project site.

As shown on Figure 2-7, many areas of the project site that are adjacent to other properties are proposed to remain in open space or are designated for low-intensity uses, such as rural residential uses. With the exception of the portion of the site that straddles Foresthill Road, the project is primarily oriented inward within the site, and away from surrounding uses. However, some specific features of the project pose potential land use conflicts. The proposed recreational vehicle park and equestrian center are located at the northeasterly property boundary, along Blackhawk Road, which leads to an isolated rural residential subdivision. The traffic, noise, dust generation and lighting associated with a recreational vehicle park and equestrian center may be disruptive to existing residential uses. Additionally, the Forest Service has indicated that it operates two developed areas immediately adjacent to the project site: an Administrative Residence Area which houses employees, and the Foresthill Work Center, which the Forest Service characterizes as industrial in nature. It houses the Forest Service Emergency Response teams, vehicle fleet and barracks, and occasionally operates 24 hours a day. Proposed uses adjacent to these Forest Service operations include open space, Rural Residential (1 dwelling unit/1 acre), and Low Density Residential (3 dwelling units/1 acre). The noise and lighting associated with the Foresthill Work Center property may be disruptive to the proposed Rural Residential and Low Density Residential uses. A wastewater treatment plant is proposed to be

located in an area west of the golf course. It is a relatively flat area, bordered to the north by proposed Medium Density Residential (4 du/acre), to the east and south by Low Density Residential (3 du/acre), and to the west by Open Space. The area proposed for treated effluent spray irrigation is the golf course and subsurface drip irrigation.

These potential land use conflicts may result in ***potentially significant impacts*** related to traffic, dust generation, noise, lighting and odors. These impacts are addressed in more detail in sections that follow. Odor and dust generation impacts are addressed in Section 3.4. Traffic is addressed in Section 3.6. Noise is addressed in Section 3.7.

Mitigation Measure

Implementation of the following measure will reduce potential land use conflicts to a *less than significant level:*

3.1.3a. *The proposed recreational vehicle park shall be relocated away from the boundaries of the project site, into the interior of the site, to buffer it from adjacent sensitive land uses.*

3.1.3b. *The Rural Residential and Low Density Residential areas located adjacent to Forest Service property shall be relocated away from the Foresthill Work Center property, using the Open Space designation to buffer them from this existing use which is industrial in character.*

3.1.3c. *A Specific Plan shall be prepared for the project site that clearly delineates the location of proposed land uses and zoning.*

Impact 3.1.4 Consistency of the proposed Forest Ranch project with the land use designations and policies of the Draft Foresthill Divide Community Plan.

Although the Foresthill Divide Community Plan (FDCP) has not been adopted and is subject to revisions, consideration of its proposed land use designations and policies that affect the project site is relevant because the Plan is under review concurrently with this project, and could be adopted prior to consideration of the proposed Forest Ranch project. It also includes policies that are directly applicable to the project site.

The Draft FDCP proposes to designate the project site as Development Reserve (1,300± acres); Forestry (160 acre minimum) on most of the remainder of the site; and small portions as Ag/Timberland (1 dwelling unit/160 acres) and Low Density Residential (1 dwelling unit/1 acre). For the 1,300± acres designated Development Reserve, Appendix B of the Draft FDCP provides a set of development standards proposed to apply specifically to the project site. It would require the 1,300± acre area to be developed as a specific plan, and also allow it to be developed as a Planned Residential Development. The allowable uses are proposed to be limited to a maximum of 533 dwelling units concentrated closer to the community core, with lower densities located further from the core. The development standards further provide that a minimum of 25% of the 1,300± acres must be designated and protected as natural open space. Recreational uses to be provided consist of non-motorized trails and adequate active parks to

serve the project residents. Allowed recreational uses include golf course improvements, equestrian boarding stables and staging areas, mountain bike courses, fitness circuits and related facilities. There is no mention of facilities such as recreational vehicle parks, and commercial uses (with the exception of accessory uses to a golf course such as a pro shop and restaurant/bar) are not permitted.

There appears to be a lack of consistency between the following features of the proposed Forest Ranch project and the Draft FDCP:

- The Forest Ranch project proposes development outside the 1,300± acre area proposed to be designated as Development Reserve in the Draft FDCP.

- The Forest Ranch application requests a General Plan Amendment and rezoning. It is not a specific plan, as required by the Draft FDCP.

- The Forest Ranch project proposes development of 2,213 dwelling units, which exceeds the maximum of 533 dwelling units as provided in the Draft FDCP.

- The Forest Ranch project proposes development of professional offices and a recreational vehicle park, which are not permitted by the Draft FDCP.

- Other provisions of the Draft FDCP development standards cannot be compared to the proposed Forest Ranch project because the application for a General Plan Amendment and rezoning does not provide the level of detail necessary to make such an evaluation.

Based on the above analysis and impact evaluation criteria, if the sections of the Draft FDCP that apply to the project site are adopted as presented above prior to consideration of the proposed Forest Ranch project, the lack of consistency of the project with the FDCP would represent a ***significant impact.*** Many of the policies of the FDCP serve to avoid or mitigate environmental impacts. Unless the Forest Ranch project was revised to reflect the provisions of the FDCP, the impact would remain ***significant and unavoidable.*** Because zoning, subdivision maps and use permits must be consistent with the applicable General Plan, any such permits or entitlements that conflict with the General Plan could not be approved without resolving that conflict, which would involve amending the text of the FDCP (including Appendix B, Development Standards) as well as the land use designations.

Mitigation Measure

No other mitigation measures are available.

3.2 AESTHETICS

3.2.1 SETTING

As described in the Project Description and Section 3.1.1, Land Use Setting, although the project site is undeveloped open space, it is not undisturbed. Several dirt roads traverse the property, as well as three County roads. The property has been logged in the past and most tree cover is second growth. Portions of the property have been reforested, including some trees planted for Christmas tree production. There is evidence of past mining (closed mineshafts, altered landforms caused by hydraulic mining) on the site (see Photoplates 3.2-1 through 3.2-4). Project site vegetation is described in Section 3.4.

Foresthill Road, which traverses the project site, is proposed to be designated as a scenic highway in the draft Foresthill Divide Community Plan. The existing Foresthill General Plan addresses "scenic routes," but does not identify specific roads as scenic routes. From Foresthill Road, only a small portion of the project site is visible. The project site is also crossed by and visible from Yankee Jim's Road and Blackhawk Road. Most views of the project site are partially obstructed by terrain and vegetation. Existing lighting levels in the project vicinity are very low.

Placer County Design Guidelines

Development of the project site is currently subject to the Placer County Rural Design Guidelines and the Placer County Landscape Design Guidelines. Goals and implementation techniques from each that are relevant to the proposed project are set forth below.

Placer County Rural Design Guidelines

A. Goals for Greenbelts, Open Spaces, Native Vegetation, Habitat and Wildlife Protection:

1. To set aside interconnected greenbelts and open spaces as a resource to be maintained in a natural state for the protection of native vegetation and wildlife, as well as for community enjoyment.

2. To retain in their natural condition all stream influence areas, including flood plains and riparian vegetation areas, while allowing for limited stream crossings for public roads, trails and utilities.

3. Identify a series of corridors for the free movement and habitat of wildlife.

4. Conserve the natural water purification capabilities of watersheds and wetlands in order to protect the quality of both the natural and domestic water resources.

5. Conservation of the natural landscape, including minimizing disturbance to natural terrain and vegetation, should be an overriding consideration in the design of any project, paying particular attention to its protection and the preservation of existing native vegetation.

B. Implementation Techniques:

#1



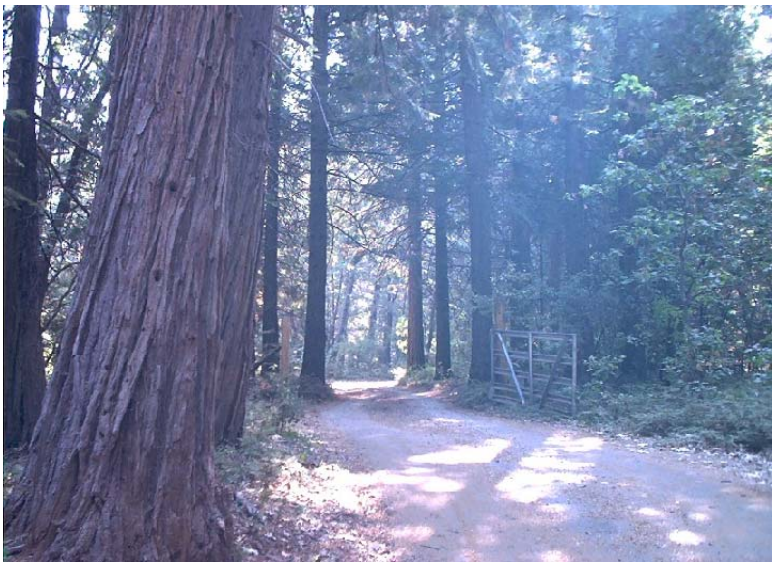
VIEW OF SITE EDGE LOOKING NORTHWEST
ALONG BLACKHAWK ROAD



#2

VIEW OF SITE LOOKING WEST
FROM BLACKHAWK ROAD

#3



PRIVATE ACCESS ROAD AROUND THE
NORTHERN EDGE OF THE PROJECT
LOOKING EAST FROM BLACKHAWK ROAD

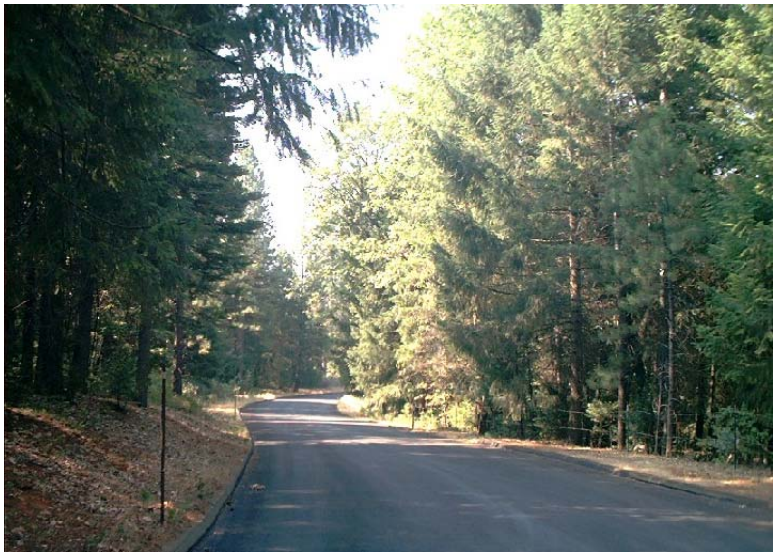
Source: Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

Photoplate 3.2-I

#1



VIEW OF SITE LOOKING SOUTH
ALONG BLACKHAWK ROAD



#2

VIEW OF SITE LOOKING NORTH
FROM BATH ROAD

#3



VIEW OF SITE LOOKING SOUTHEAST
FROM BATH ROAD

Source: Quad Knopf, Inc., 2002

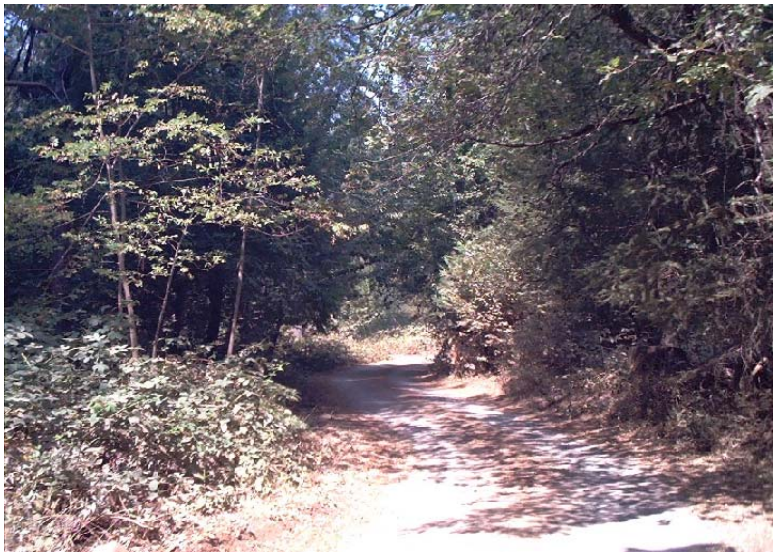
Quad Knopf

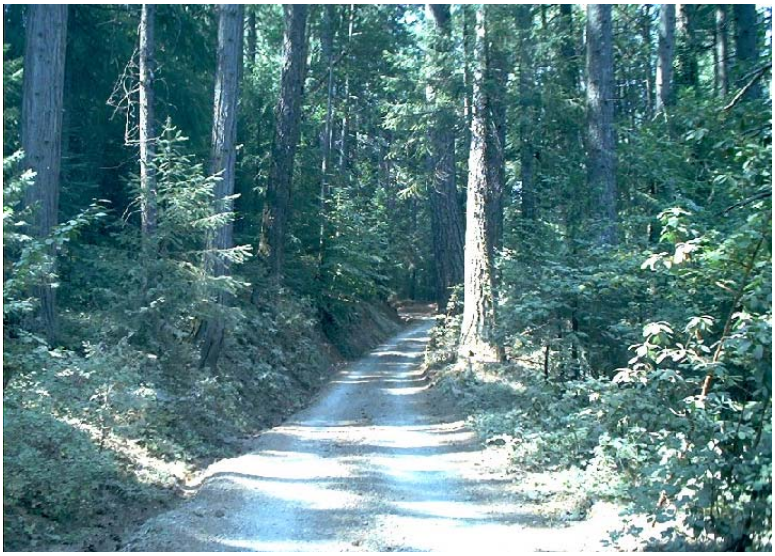
FOREST RANCH EIR

Photoplate 3.2-2

#1

VIEW OF SITE LOOKING NORTHWEST
FROM CHURCH STREET





#2

VIEW OF SITE LOOKING SOUTHWEST
FROM CHURCH STREET

#3

VIEW OF SITE LOOKING WEST
FROM YANKEE JIM'S ROAD



Source: Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

Photoplate 3.2-3

#1



VIEW OF SITE LOOKING EAST
ALONG YANKEE JIM'S ROAD



#2

VIEW OF SITE LOOKING WEST
ALONG YANKEE JIM'S ROAD

#3



VIEW OF CLOSED MINE SHAFT ON PROJECT SITE

Source: Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

Photoplate 3.2-4

1. Open space should be maintained a minimum of 100 feet from the center line of any permanent streams, and a minimum of 50 feet from intermittent streams to (a) reduce, by natural filtering, the possibility of contamination of the stream from fertilizers and other manmade compounds, and (b) to provide a corridor for wildlife to live and move in relative safety.

2. Those areas rich in wildlife or of a fragile ecological nature, e.g. areas of rare or endangered species of plants, riparian areas, etc., should be avoided in land development. Where necessary, in order to preserve these areas, they should be publicly acquired (or given via an irrevocable offer of Trust) to ensure protection.

3. For all projects, the purpose of the open space should be determined and specified on maps and/or project conditions as to its purpose.

5. Open space land used to preserve a natural feature should be deeded to the County, a homeowners' association, or to a suitable non-profit land trust to ensure the original intent of open space is preserved for future generations.

7. Pedestrian and equestrian trails and pathways may be established in natural preserves when appropriate. Trails should be constructed and maintained as naturally as possible. At least two public access points from a public roadway should be included in open space design.

9. Every effort should be made by the use of deed restrictions, CC&Rs, and educational materials to notify landowners of the purpose of the open spaces and easements and the responsibilities which they have to protect and preserve these areas for the purposes set forth in the conditions of project approval.

10. Where sensitive natural resources are to be protected, management plans should be required. The sensitive features should be identified in the management plan. The management plan should outline the measures to be implemented for the protection and enhancement of the sensitive area, and should also identify areas on adjacent properties which could be linked or connected to result in open space corridors and greenbelts such as those described in the following section related to trees (the management plan may be the same as a Mitigation Monitoring Program).

11. The presence of native and other trees on rural residential lots can add significantly to property values as well as provide benefits for wildlife, create natural cooling, and add to the attractiveness of an area. The retention of trees should be encouraged for aesthetic, economic, and environmental reasons.

12. During the review of new development projects, the County's Tree Preservation Policies should be consulted for additional guidance.

A. Goals for Planned Residential Developments (PDs):

1. To preserve natural resources such as riparian habitats, natural waterways and other environmentally sensitive areas.

2. To preserve cultural or historically sensitive areas.

3. To provide on-site public and/or private recreational opportunities.

B. Implementation Techniques:

1. Varied lot sizes within Planned Residential Developments (PDs) allow flexibility to create site sensitive projects in order to meet or exceed the goals and policies of a community plan.

2. The layout of lots, roadways and open space is site specific and must be based on constraint mapping that depicts geologic, hydraulic, topographic vegetative and other natural, cultural or historic features.

3. It must be recognized that the maximum density permitted by the zoning may not be achieved due to the above constraints. The size and number of parcels within the remaining developable area is dependent upon compatibility with surrounding properties and the goals and policies of the community plan, including the intent of the land use district(s) in which the project is located.

4. PDs are allowable only where they benefit the local community, for example, where they protect a stream bed, wildlife corridor or grove of oak trees. Any protected areas should be held under common ownership of the homeowners association or deeded to the County or a suitable non-profit trust and not as easements within individual residential lots. The overriding benefit of a PD would not be to add more home sites to a parcel of land.

5. PDs also provide a buffer between sensitive environmental areas such as groves of trees and steep slopes.
6. Common open space areas should maintain and complement the natural environment by utilizing native drought-tolerant plant species in landscape design and minimize extensive use of planted turf areas.

7. Recreational improvements, consistent with the Zoning Ordinance and the specific community plan and community needs, must be included within PDs.

A. Goal for Lighting:

1. To provide a minimum of artificial lighting on residences, other structures, and along roadways to limit the amount of light pollution.

B. Implementation Techniques:

1. While street lights may be useful at particularly busy intersections and streets, their use should be discouraged on other more rural streets and lanes.

2. Street lights should be minimized along county roads and within subdivisions while following Placer County road standards. Street lights may be appropriate for large subdivisions entering on roads with a high posted speed limit.
3. If a street light or an area light is required, it should be of the type specified below to protect neighbors from direct rays. Area lighting should be shielded such that direct rays do not pass property lines. Low pressure sodium lamps are encouraged while halogen type lights are discouraged.

4. Where required, the street lamp should be:

a. Of the high pressure sodium type and of a "cobra head with flat bottom" style or fully shielded such that light is directed only downward.

b. Mounted on a wood pole at a height and wattage recommended by PG&E and appropriate for a rural area.

5. Parking lot lamps should be mounted such that they point downward without direct rays extending past the parking lot, building entrance, walkway, or area intended to be illuminated.

A. Goal for Preservation of Scenic Areas:

1. To avoid creating predominant landmarks which impose on the landscape and the natural skyline in ways that cause the contiguous rural landscape to be interrupted.

2. To protect the Folsom Lake, and other large bodies of water, view sheds (as viewed from the lake area), and public view corridors along major County roadways and Interstate 80 from actions which degrade their scenic quality.
B. Implementation Techniques:

1. Homes and accessory structures should blend into the environment.

2. Where possible, structures should be tucked along tree lines or along other topographical changes in contour.

3. On lots located along ridge tops, houses and accessory structures should be built just below the ridge line where there are no existing trees to prevent the structures from becoming the predominant feature on the rural landscape. Otherwise, such development should be screened by new plantings of sufficient height and bulk at maturity to minimize visual encroachment to the greatest extent possible.

4. One method of ensuring that structures do not emerge above the tree tops involves the use of a helium balloon on a string. The helium balloon is allowed to rise until it begins

to emerge above the tree tops. The length of string used to elevate the balloon to the level just below the tree tops is used to determine the height of structures in that specific area.

5. Whenever possible, buffers of natural vegetation and wooded areas should be situated between roadways and structures. The effect of this is to tuck structures away, creating the illusion of a continuous rural landscape and to avoid the appearance of imposing structures on the landscape.

A. Goals for Rural Roadways

1. To preserve the rural flavor and scenic value of the plan area by design and placement of the road system to maintain open space through the use of adequate setbacks from main roads and structures.

2. To provide a safe path for pedestrians, equestrians, and bicycles on major plan area roads by providing separated trails within or adjacent to the road right-of-way. If possible, the path should be separated by a row of oak or other trees. Any additional right-of-way provided for trails beyond that necessary for roadway requirements should not be deducted from density yields.

3. To avoid the use of standard cement curb, gutter and sidewalks in the rural environment except where otherwise required by the Placer County Land Development Manual (road standard plates).

4. To meet CDF and local fire department road standards.

5. Provide a road alignment that works around trees and rock outcroppings as much as possible, with appropriate protection for safety considerations such as minimum design speeds and protection of motorists from fixed objects.

Implementation Techniques:

Roadways should be designed to be as narrow as possible while still complying with the Land Development Manual rural road plate standard.

1. The design should also take into consideration pedestrian, equestrian and bicycle traffic. A class 1, 2 or 3 bike path and separated equestrian/pedestrian trail is encouraged where identified in a community plan or recommended by the County's Parks Administrator.

2. Roadways are preferred as a boundary between open space and housing instead of a back yard. This would provide a common feeling of ownership of the open space and provide more natural boundaries to homes. Enforcement of open space protection should also be easier if private lots are separated from the common open space by a rural road.

3. Roadways should follow the natural topography of the land, avoiding as much cut and fill as possible. Where minimum road standards are met, existing lanes and rural roads should be incorporated into the subdivision design.

4. Long, straight, wide roads are to be discouraged for a rural area due to the combination of excessive speeds and danger of animal crossings.

5. When a road design which is inconsistent with the Land Development Manual is considered for approval by the Planning Commission and/or the Board of Supervisors, the Commission and/or Board shall adopt findings that articulate the balancing of interest required by this provision and demonstrate the specific scenic and/or rural values which will be protected in exchange for the modifications to the road design. For those projects where these findings are made, a condition of approval shall be applied to the project requiring the applicant's engineer to certify on the project improvement plans that the final road design is safe and consistent with reasonable engineering standards in effect for such a roadway.

A. Goal for Existing Historical and Cultural Features:

1. To preserve and protect the existing historical, cultural and archeological features which give the plan area its unique rural identity.

B. Implementation Techniques:

1. Existing historical, cultural or archeological features should be incorporated into the subdivision design wherever possible. If possible, include these features in open space lots.

2. Protection of historical, cultural, and archeological resources should be addressed in management plans of the type described in the section on Greenbelts, Open Spaces, Habitat and Wildlife Protection as a condition of project approval.
3. Local historical societies should be consulted with regard to historical or archaeological value, proper handling, and academic documentation, before any historical or archeological features are removed or relocated. Cases involving archeological features should require the consultation of proper academic authorities from the local colleges or university.

A. Goal for Recreation Facilities:

1. To identify and encourage the development of recreation resources compatible with a rural way of life and rural environments.

2. To develop and maintain the features which hold Placer County as one of the leading equestrian areas/per capita in the nation, for both the economic value that it yields and the rural values that it promotes.

B. Implementation Techniques:

1. Include equestrian and pedestrian trails along with bike paths as recreational facilities.
2. Examples of rural recreational facilities include:

a. Equestrian arenas;

b. Self-guided nature trails;

c. Pedestrian/equestrian trails and bike paths.

Placer County Landscape Design Guidelines

1. Existing trees and shrubs, particularly mature native and non-native trees, 6" in diameter or greater, at 4' in height, should be preserved and incorporated into proposed plans where feasible. All existing trees that are to be saved are to be protected during construction. Proper technique is to be used when saving trees (i.e. no grading within the drip line). Protection and preservation of native species and natural areas is highly encouraged as a part of any development. Tree removal is subject to the Placer County Tree Preservation Ordinance.

2. Natural site amenities should be recognized. Creeks, rock outcrops, views, and other similar features unique to the site should be preserved and incorporated into project plans.

3. Landscaping should cover a minimum of fifteen percent of the site (more is encouraged). All areas not paved or covered by structures must be landscaped with a combination of trees, shrubs, ground cover and/or turf. Incorporation of water features and pedestrian open spaces into the project's overall design is encouraged. Recirculating water shall be used for any decorative water feature.

4. There should be a consistency of landscape design throughout a development. Unrelated and/or random placement of plant materials should be avoided. All areas within a development need not be identical; different landscape themes may be utilized in larger developments. For example, landscape themes may be used to heighten the distinction between spaces and to strengthen a sense of movement and place, but such themes should be internally consistent.

5. The scale and nature of landscape materials should be appropriate to the site and/or structure. Large-scale buildings generally should be complemented by large-scale landscaping. Where shade is desired, broad-spreading canopy-type trees are appropriate. Landscaping of sites on major streets should include large-scale trees.

6. Landscaping incorporated into building design is encouraged. Trellises, arbors, and cascading type landscaping should be considered.

7. Generally, a limited palette of landscape materials is suggested. The use of native plant material and drought tolerant plant materials is highly encouraged.

8. A small percentage of the landscaped area (up to 25%) can be used for plant material that is not drought tolerant or native. Water intensive plants should be confined to areas of high visibility and to areas of high use.

15. Landscaping along all of the borders of the property is required (unless special circumstances demonstrate that it would not be necessary to do so).

17. Trees or shrubs should be planted as necessary to protect or screen adjoining properties from light, noise, or physical distractions in the proposed development. A minimum 20' planter width should be utilized where a project abuts a residentially zoned lot.

19. Off street parking areas should be designed and landscaped so as to minimize glare, reflection, and the visual impact of a large number of cars. Broad leaf canopy trees are encouraged.

20. Parking areas and areas of pick-up and delivery are to be screened, or partially screened with a landscape buffer. This can be accomplished with earth berms (turfed or planted), tall shrubs, trees, walls, or fences. Evergreen trees should be used for screening purposes for loading docks, heavy equipment yards, or other unsightly areas that are visible to the public.

22. "Comprehensive" master landscape plans for shopping centers, business parks, industrial parks, and other developments with multiple tenants is required. "Piecemeal" landscaping in these areas is not acceptable.

23. Areas within the right-of-way (i.e., between the sidewalk and the curb) are to be planted and maintained by the property owner, unless otherwise required.

26. Landscape islands in non-industrial zone districts are to be provided at minimum intervals of every 10 parking spaces. Landscape islands in industrial zone districts are to be provided at minimum intervals of every 15 parking stalls. All islands must contain trees with shrubs and/or ground cover as understory. Note: Islands should generally be the size of a parking stall and at a minimum width of 9'-0".

27. Limitations on the Use of Turf: The combined turf and water feature areas (i.e., ponds, waterfalls, etc.) should be limited to 25% of the overall landscaped area. If turf is an essential part of the development, such as athletic fields or other recreational use, a higher percentage shall be allowed.

28. For projects located at the interface between developed areas and natural open space, native or water conserving plants should be selected that will blend in with the native vegetation and are fire resistant or fire retardant.

29. Plants selected for slope areas are to be water conserving plants, suitable for erosion control. Ground cover other than turf will be used on all slopes exceeding 10%.

Development Standards, "Forest Ranch" Specific Plan Area Architectural/Design Standards

The draft Foresthill Divide Community Plan includes the following proposed architectural/design standards that would apply specifically to the project site.

The location and design of all proposed structures must relate to existing terrain and must preserve the natural features of the site to the maximum extent possible. Any proposed design must take into account grade changes, locations of trees and boulders, and orientation of the proposed improvements to sun, wind and views.

Due to topography, landform and the outstanding natural landscape features in the region, views and viewsheds take on added importance as design features. The importance of views and viewsheds is readily apparent in the relative value of homes and land that have views.

a. The design objective of every home should be to allow the natural setting to remain the dominant image. Buildings within this setting must fit quietly into the existing landscape. The goal is to create appealing and interesting structures that are subtle and complementary to the dominant beauty of the forest setting. The area of soil and vegetation disturbance on each homesite must be limited to that required for necessary construction, access and landscaping purposes. Except where required by access, there must be no disturbance in setbacks and areas that are otherwise designated to be left in a natural state. House designs must fit their sloping sites rather than the site made to fit an inappropriate design.

b. Tree, brush, and rock removal must be limited to that reasonably necessary for the construction of a home and its protection from fire. No clear cutting of trees within any building envelope will be permitted; however, it is understood that some selective pruning or removal of trees and shrubs will be necessary for the development of any homesite.

c. In many cases, the roof is the largest and most important visual element of a structure. The overall profile and articulation of the roof should be sufficiently irregular to break up anything that would otherwise appear too boxy or discordant with the landscape or neighboring structures. The roofs of all two-story homes should include single-story elements. For both one and two-story residences, the roof profile should be richly varied, including individual masses of sufficient size, in plan and elevation, to convey the desired result.

d. Exterior materials should generally be natural materials that blend and are compatible with the native landscape of the specific homesite. The predominant exterior materials shall consist of stone and wood. The allowable wood materials include shingles, beveled or tongue-and-groove board siding, logs, board-on-board or board and batten siding. This provision would not preclude the use of smooth T-111 siding with battens nailed to

the exterior on 16-inch centers; however, the use of grooved T-111 siding is not permitted.

e. Color can be described in terms of three attributes, including hue (its basic color), value (lightness and darkness), and chroma (intensity). When proposing colors for the exterior materials for a home, keep in mind the following:

- Color is affected by architectural design. Planar surfaces will read lighter than those that involve a great deal of articulated shade and shadow.
- Color is affected by relationships. Colors must related to and be compatible with the natural landscape.
- Portions of buildings usually suggest special treatment, including the use of more than one color on a single structure. The combinations of these colors must be addressed in a skillful way to ensure quiet and complementary combinations are the results.
- As a general guideline, light reflectance values for field and trim colors shall range from a low of 15 to a high or 40.
- Where more than one color is approved on a single structure, all color changes must be made at an inside corner.

f. Driveway access and garage location lend significant shape to the design and placement of the home. One of the greatest contributors to negative feelings about residential subdivisions is the often-present row of garage doors aligned along the street with oversized driveways leading to them. When planning a house in this area, the view of the garage doors from the street must be minimized.

g. When considered in site planning, solar conscious design can provide for energy efficiency in space heating by allowing for seasonal solar exposure/screening. Appropriate solar exposure can also help reduce the amount of snow removal necessary to access a site in winter. Areas of pavement that receive sunlight in winter often clear themselves after several cloudless days whereas north-facing and shadowed areas may retain snow for many consecutive days.

h. Refuse enclosures must be provided and must accommodate a minimum of two (2) covered 32-gallon plastic refuse containers on wheels. The doors must be designed to prevent the attempts of bears and other animals trying to infiltrate the trash area. Special attention to door thickness and construction, hinges, latches, and knobs will be required to prevent sabotage by scavenging animals. These refuse enclosures must be proximate to the street for ease of access by refuse collectors; however, they must also be architecturally compatible with the residence on the same parcel and screened from street view to the maximum degree possible.

i. Walls, screens, or fences may be allowed when they are proposed as a visual extension of residences or other residential accessory structures and when they delineate a yard area near a residence (or accessory structure). Such walls, screens and fences should use

materials and finishes consistent with the design materials used on the residence. If fences are constructed along lot boundaries, such fences shall allow for the reasonable passage of wildlife. Chain-link fences are prohibited except where they are not visible from public roadways, trails, and adjoining residential or recreational uses.

j. In most cases driveway slopes are required to be less than 8% overall and may not exceed a 12% gradient at their steepest part. Additionally, for safety considerations, there must be provided a near-level (<2%) transition area of at least 16 feet between slopes and garage doors and a near-level transition area of at least 8 feet between slopes and the edge of the pavement at the roadway.

k. The Specific Plan shall also include the following design considerations:

- Separate design guidelines for the golf course and clubhouse facilities that reflect the forested, rural nature of the area;
- Pedestrian and alternative vehicular entrances to the historic downtown from the project;
- A circulation alternative that does not preclude a roadway connection from the project site to Yankee Jim's Road;
- Provisions for transit and park & ride facilities (including school bus stops);
- Street lighting and other outside lighting should incorporate "dark skies" principles;
- Gated communities shall be precluded; and,
- Provisions for public play shall be incorporated into the golf course approvals.

Placer County General Plan Policies

Land Use

1.B.5. The County shall require residential project design to reflect and consider natural features, noise exposure of residents, visibility of structures, circulation, access, and the relationship of the project to surrounding uses. Residential densities and lot patterns will be determined by these and other factors. As a result, the maximum density specified by General Plan designations or zoning for a given parcel of land may not be realized.

1.D.2. The County shall require new commercial development to be designed to minimize the visual impact of parking areas on public roadways.

1.K.1. The County shall require that new development in scenic areas (e.g., river canyons, lake watersheds, scenic highway corridors, ridgelines and steep slopes) is planned and

designed in a manner which employs design, construction, and maintenance techniques that:

a. Avoids locating structures along ridgelines and steep slopes;
b. Incorporates design and screening measures to minimize the visibility of structures and graded areas;
c. Maintains the character and visual quality of the area.

1.K.2. The County shall require that new development in scenic areas be designed to utilize natural landforms and vegetation for screening structures, access roads, building foundations, and cut and fill slopes.

1.K.3. The County shall require that new development in rural areas incorporates landscaping that provides a transition between the vegetation in developed areas and adjacent open space or undeveloped areas.

1.K.4. The County shall require that new development incorporates sound soil conservation practices and minimizes land alterations. Land alterations should comply with the following guidelines:

a. Limit cuts and fills;
b. Limit grading to the smallest practical area of land;
c. Limit land exposure to the shortest practical amount of time;
d. Replant graded areas to ensure establishment of plant cover before the next rainy season; and
e. Create grading contours that blend with the natural contours on site or with contours on property immediately adjacent to the area of development.

1.K.5. The County shall require that new roads, parking, and utilities be designed to minimize visual impacts. Unless limited by geological or engineering constraints, utilities should be installed underground and roadways and parking areas should be designed to fit the natural terrain.

1.K.6. The County shall require that new development on hillsides employ design, construction, and maintenance techniques that:

a. Ensure that development near or on portions of hillsides do not cause or worsen natural hazards such as erosion, sedimentation, fire, or water quality concerns;
b. Include erosion and sediment control measures including temporary vegetation sufficient to stabilize disturbed areas;
c. Minimize risk to life and property from slope failure, landslides, and flooding; and
d. Maintain the character and visual quality of the hillside.

1.L.1. The County shall designate scenic routes within the county in order to preserve outstanding scenic quality within different geographic settings.

1.L.3. The County shall protect and enhance scenic corridors through such means as design review, sign control, undergrounding utilities, scenic setbacks, density limitations, planned unit developments, grading and tree removal standards, open space easements, and land conservation contracts.

1.L.4. The County shall provide for landscaping and/or landscaped mounding along designated scenic corridors where desirable to maintain and improve scenic qualities and screen unsightly views.

1.O.1. The County shall require all new development to be designed in compliance with applicable provisions of the Placer County Design Guidelines Manual.

1.O.3. The County shall require that all new development be designed to be compatible with the scale and character of the area. Structures, especially those outside of village, urban, and commercial centers, should be designed and located so that:

a. They do not silhouette against the sky above ridgelines or hilltops;
b. Roof lines and vertical architectural features blend with and do not detract from the natural background or ridge outline;
c. They fit the natural terrain; and
d. They utilize building materials, colors, and textures that blend with the natural landscape (e.g., avoid high contrasts).

1.O.4. The County shall require that new rural and suburban development be designed to preserve and maintain the rural character and quality of the county.

1.O.8. The County shall, where appropriate, require new development to provide activity pockets along public sidewalks as pedestrian amenities, including such features as benches, sitting ledges, and mini-parks.

1.O.9. The County shall discourage the use of outdoor lighting that shines unnecessarily onto adjacent properties or into the night sky.

Foresthill General Plan Goals and Policies

Scenic Highways

Goal: To preserve, enhance and protect the scenic resources visible from scenic routes in the Foresthill area.

1. To encourage and utilize existing County programs for protection and enhancement of scenic corridors, including but not limited to design review, sign control, undergrounding utilities, scenic setbacks, density limitations, planned unit developments, grading and tree removal standards, open space easements, and land conservation contracts.

2. To provide for landscaping and landscaped mounding where desirable to maintain and improve scenic qualities and screen unsightly views.

Foresthill Divide Community Plan Goals and Policies

Community Design

3.C.1-1 All new development (including major remodeling and reconstruction) shall be designed in compliance with applicable provisions of the Foresthill Community Design Guidelines, Placer County Rural Design Guidelines and Placer County Design Guidelines Manual.

3.C.1-2 Future development proposals shall be submitted to the Foresthill Design Review Committee (Foresthill Forum) to ensure consistency with design standards and community concerns.

3.C.1-3 Design commercial, industrial and residential site layouts with the intent of encouraging human interaction, protecting the Divide's natural resources and providing compatibility with the surrounding environment.

3.C.1-4 Design all new development to be compatible with the scale and character of the area. Structures, especially those outside of commercial centers, should be designed and located so that:

a. They do not silhouette against the sky above ridgelines or hilltops;
b. Roof lines and vertical architectural features blend with and do not detract from the natural background or ridge outline;
c. They fit the natural terrain, and;
d. They utilize building materials, colors, and textures that blend with the natural landscape (e.g., avoid high contrasts).

3.C.1-5 The size and scale of all new buildings shall be conducive to maintaining the rural atmosphere of the Foresthill area. The architectural scale of non-residential buildings, as differentiated from size, shall reflect that of the immediate surroundings.

3.C.1-6 Provide a pleasant environment as well as safety and shelter to pedestrians.

3.C.1-7 New rural and suburban development shall be designed to preserve and maintain the rural mountain character and quality of the area.

3.C.1-11 Protect and enhance the gateway and scenic corridors that bring residents and visitors onto the Foresthill Divide and into Foresthill.

3.C.1-12 New projects, outside the commercial core area of Foresthill, shall be required to provide a minimum 50 foot wide landscaped area adjacent to Foresthill Road, Foresthill-Soda Springs Road, and Mosquito Ridge Road, be preserved whenever

possible. Existing trees within this landscape area should be saved, or if none exist, new trees shall be planted to fill in the gaps. The use of native evergreens and oaks shall be required. Low growing native ground covers shall be planted beneath these trees.

3.C.1-13 Restaurant and Retail Commercial structures, outside of the historic core area of Foresthill, should be located as near to the road right-of-way as possible, allowing for landscaping and pedestrian circulation. Ideally parking with adequate maneuvering area would be behind or between structures.

3.C.1-14 Commercial structures, outside of the historic core area of Foresthill, should incorporate traditional elements and materials.

3.C.1-15 Wherever possible an all weather trail (e.g., decomposed granite), roughly parallel to but physically separate from Foresthill Road and Foresthill-Soda Springs Road, shall be provided for pedestrians and motorized traffic.

3.C.1-16 Outdoor storage, not related to a residential use, shall be screened from public view.

3.C.3-1 Rural residential and rural estate projects in the Plan area shall conform to and implement the Placer County Rural Design Guidelines.

3.C.3-2 Landscaping shall be used to reduce the visual impact of all structures, including solid fences. Native vegetation should dominate where possible. Where existing vegetation is inadequate, the use of native plant materials is encouraged. Landscaping materials should provide an informal character and smooth transition between buildings, parking lots adjoining roadways and open s pace.

3.C.3-4 The design of any new road or major road improvement project within Foresthill shall maintain the scenic and rural qualities of the area. Such design shall minimize impacts upon natural resources, agricultural lands and historic sites.

3.C.3-5 The use of solid fences around property shall be discouraged.

3.C.3-6 New lighting that shines onto adjacent properties or into the night sky shall not be permitted. The modification/removal of existing outdoor lighting of that type shall be encouraged.

3.C.5-1 No internally illuminated signs shall be permitted within the Plan area. All signs shall be externally illuminated and otherwise consistent with the applicable design guidelines, if any.

3.C.5-2 Signage outside of commercial areas shall be discouraged. Signage along designated scenic corridors shall be limited to those necessary for public safety.

Goal 3.C.8: Create residential development which complements the rural surroundings, demonstrates an appreciation of natural open space areas, provides opportunities for non-auto transportation alternatives, and accommodates and encourages neighborhood interaction.

3.C.8-1 A neighborhood design plan for residential developments shall be developed that emphasizes pedestrian connectors within neighborhoods as well as between other residential areas. Other themes to be emphasized include small neighborhood parks and school/county transit but stops, where appropriate.

3.C.8-2 Property owners shall be encouraged to leave a pathway adjacent to roadways for pedestrian use.

Goal 3.C.9: Protect the visual and scenic resources of the Foresthill Divide as an important quality-of-life amenity for local residents and as a principal asset in the promotion of recreation and tourism.

3.C.9-1 New development in scenic areas (e.g., river canyons, watersheds, scenic highway corridors, community gateways, ridgelines and steep slopes) outside the commercial core shall be planned in a manner which employs design, construction, and maintenance techniques that:

a. Avoid locating structures along ridgelines and steep slopes such that they would be silhouetted from below or from a public road;
b. Incorporate design and screening measures to minimize the visibility of structures and graded areas;
c. Maintain the character and visual quality of the area.
d. Utilize natural landforms and vegetation for screening structures, access roads, building foundations, and cut and fill slopes.
e. Incorporate landscaping that avoids significant discontinuity in landscaping vegetation between developed areas and adjacent open space or undeveloped areas.

3.C.9-2 New development, road construction or reconstruction shall incorporate sound soil conservation practices and minimize land alterations. Land alterations should comply with the following guidelines:

a. Limit cuts and fills;
b. Limit grading to the smallest practical area of land;
c. Limit land exposure to the shortest practical amount of time;
d. Replant graded areas with native or non-invasive exotic species to ensure establishment of plant cover before the next rainy season; and
e. Create grading contours that blend with the natural contours on site or with contours on property immediately adjacent to the area of development.

3.C.9-3 New roads, parking, and utilities shall be designed to minimize visual impacts. Unless limited by significant geological or engineering constraints, utilities should be installed underground and roadways and parking areas shall be designed to fit the natural terrain.

3.C.9-4 New development on hillsides shall employ design, construction, and maintenance techniques that:

a. Ensure that development near or on portions of hillsides does not cause or worsen natural hazards such as erosion, sedimentation, fire, or water quality concerns;
b. Utilize erosion and sediment control measures including temporary vegetation (native or non-invasive exotic species) sufficient to stabilize disturbed areas;
c. Minimize risk to life and property from slope failure, landslides, fire and flooding; and
d. Maintain the character and visual quality of the hillside.

Goal 4.A.14: Protect and maintain identified viewsheds and natural areas of special aesthetic quality along Foresthill roadways.

4.A.14-1 The well-recognized views of surrounding lands, ridges and canyons from public rights-of-way or lands shall be retained.

4.A.14-2 The views of proposed development from other properties shall be considered when making decisions on compatibility of the proposed development.

4.A.14-3 Ridge line development shall be carefully reviewed to ensure that proposed structures and lighting do not unduly intrude into the view-line of nearby roadways and properties.

4.A.14-4 The undergrounding of existing and new utility lines shall be encouraged.

4.A.14-5 Although not entirely within the Community Plan area, the following road segments hall be designated as scenic highways:

a. Foresthill Road within the Plan area and to Robinson Flat;
b. Mosquito Ridge Road to Robinson Flat Road; and,
c. Robinson Flat Road from Mosquito Ridge Road to Foresthill Road.

3.2.2 IMPACTS AND MITIGATION MEASURES

Impact Evaluation Criteria

There are no specific federal or State regulations pertaining to visual quality that apply to the project site. Based on consideration of Appendix G of the State CEQA Guidelines, the project would be considered to have a significant adverse aesthetic impact if it would:

- Have a substantial adverse effect on a scenic vista.

- Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

- Substantially degrade the existing visual character or quality of the site and its surroundings.

- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Development which is inconsistent with relevant Placer County General Plan and Foresthill General Plan policies should be considered potentially significant. Because the Foresthill Divide Community Plan (FDCP) is not yet adopted, but has been developed by the Foresthill Community Plan Team and is currently under review for possible adoption, development that is inconsistent with relevant proposed policies may be considered potentially significant, although it is recognized that policies may not be adopted in their current form.

Impact 3.2.1 Alteration of views of the project site from roadways along and through the site, and from surrounding properties.

Due to its size and location, as well as terrain and vegetation, much of the project site is not visible from surrounding properties and roadways. However, the project site has a limited amount of frontage on both sides of Foresthill Road, and portions of the site are visible from Blackhawk Road and Yankee Jim's Road, which cross through the site.

Proposed land uses along Yankee Jim's Road include Low Density Residential (2 dwelling units/acre), Open Space and an equestrian staging area on the south side; and Low Density Residential (3 dwelling units/acre), General Commercial (professional offices) and Open Space (golf course) on the north side. Proposed land uses along Blackhawk Lane include Open Space, Rural Residential (1 dwelling unit/1 acre and 1 dwelling units/5 acres), and the recreational vehicle park and equestrian center. Proposed land uses along Foresthill Road include Rural Residential (1 dwelling unit/1 acre), Open Space, and Low Density Residential (3 dwelling units/acre).

The proposed project provides for varying setbacks as described below. The distances are approximate based on the maps submitted to the County by the applicant. The proposed project provides for a 200 to 300-foot setback from the west side of Foresthill Road shown as Open Space, but no setback on the east side (see Figure 2-3). The proposed project provides for a setback ranging from approximately 50 feet to up to 1,600 feet on a portion of the south side of Yankee Jim's Road shown as Open Space, with a portion of the road crossing a Low Density Residential-2 and Low Density Residential-3 areas and the golf course. Portions of the north side of Yankee Jim's Road include setbacks designated as Open Space ranging from approximately 50 feet to approximately 200 feet, although other portions cross Low Density-2 and Low Density-3 areas and the golf course. The proposed project provides for a setback from

the west side of Blackhawk Lane of approximately 50 feet shown as Open Space, with the northerly portion of the road on the project site immediately adjacent to areas designated Rural Residential-5, Rural Residential-1, and Open Space on the west; and areas designated Rural Residential-5, Open Space, and the recreational vehicle park on the east.

No renderings or elevations of proposed structures are available at this stage of the development review process. Under the provisions of the 1981 Foresthill General Plan and the Placer County General Plan, new development on the project site must comply with applicable policies and implementation techniques of the respective plans. New development on the project site must also comply with the Placer County Rural Design Guidelines, the Placer County Design Guidelines Manual, and the Placer County Landscape Design Guidelines. Because compliance with these guidelines is required at such time as plans are submitted for the design review process, compliance with the respective guidelines is not included as mitigation. If any guidelines are amended, superseded or replaced (e.g., by the proposed Foresthill Divide Community Plan), the new guidelines will apply to the project (unless a development agreement executed by the County and the applicant provides otherwise).

Even with the application of General Plan policies and applicable design and landscaping guidelines, views of portions of the site will be altered from undeveloped (although disturbed) forested land to views of recreational facilities, professional offices, and rural and low density residential development. Some of the open space will change from natural to developed open space (i.e., the golf course). While these views may be attractive, they represent a substantial change from existing views.

Because aesthetic considerations are often subjective and difficult to judge, two generally objective criteria are used in this EIR to establish the level of significance of the change. The first addresses the visibility of the landscape being altered and whether it will appear in the foreground, middle ground or background of most viewers. Changes in the foreground are most significant, with distance and topography or vegetative screening reducing impact. The second criterion concerns visual contrast, which is a measure of the degree of perceptible change. This is often characterized as being a strong, moderate or weak change. Using this approach, a "strong" change would be immediately apparent and would dominate the landscape, whereas a "weak" change would be barely noticeable.

A substantial number of Foresthill residents, as well as other non-resident viewers, will see changes while traveling along segments of Foresthill Road, Yankee Jim's Road and Blackhawk Road. Topography and vegetation will screen much of the site from view. However, for those segments visible to viewers, the change will be strong because a portion of the landscape will be significantly altered from undeveloped, forested (although disturbed) open space to a rural, developed setting with low density housing, an office building, and developed recreational uses. These changes are a significant departure from what was anticipated under the existing Foresthill General Plan and analyzed as part of the Foresthill Divide Community Plan due to the level and type of development proposed for this project. The proposed project will have 1,680 units more than what was anticipated with the proposed Foresthill Community Plan as well as an RV park and office/commercial development. This greater level of development can be partially mitigated through application of the development standards for the Specific Plan. Although the

developed environment that is ultimately built may be aesthetically pleasing to many (including people who choose to live there), development will, nevertheless, significantly degrade the existing visual character and quality of the project site. Based on impact evaluation criteria, this is a ***significant and unavoidable impact.***

Mitigation Measures

The following measures will reduce the impact, but *not to a less than significant level:*

3.2.1a. *Tentative subdivision maps for residential development and multiple family development shall be designed to reflect and consider natural features, visibility of structures, and the relationship of the project to surrounding uses, and to maintain the character and visual quality of the area.*

3.2.1b. *The professional office development, recreational facilities, and multiple family development shall be designed to minimize the visual impact of parking areas on public roadways.*

3.2.1c. *New development in scenic areas (e.g., river canyons, watersheds, scenic highway corridors, community gateways, ridgelines and steep slopes) outside the commercial core shall be planned in a manner which employs design, construction, and maintenance techniques that:*

a. Avoid locating structures along ridgelines and steep slopes such that they would be silhouetted from below or from a public road;
b. Incorporate design and screening measures to minimize the visibility of structures and graded areas;
c. Maintain the character and visual quality of the area.
d. Utilize natural landforms and vegetation for screening structures, access roads, building foundations, and cut and fill slopes.
e. Incorporate landscaping that avoids significant discontinuity in landscaping vegetation between developed areas and adjacent open space or undeveloped areas.

3.2.1d. *Roads and other public works projects shall incorporate aesthetic values, as well as utility, safety and economy.*

3.2.1e. S*ignificant natural, open space and cultural resources shall be identified in advance of development and incorporated into site-specific development project design.*

3.2.1f. *All residential development shall provide private and/or public open spaces.*

3.2.1g. *The location and design of all proposed structures must relate to existing terrain and must preserve the natural features of the site to the maximum extent possible. Any proposed design must take into account grade changes, locations of trees and boulders,*

and orientation of the proposed improvements to sun, wind and views. The Forest Ranch project shall adhere to the following Architectural/Design Standards:

a. The design objective of every home should be to allow the natural setting to remain the dominant image. Buildings within this setting must fit quietly into the existing landscape. The goal is to create appealing and interesting structures that are subtle and complementary to the dominant beauty of the forest setting. The area of soil and vegetation disturbance on each homesite must be limited to that required for necessary construction, access and landscaping purposes. Except where required by access, there must be no disturbance in setbacks and areas that are otherwise designated to be left in a natural state. House designs must fit their sloping sites rather than the site made to fit an inappropriate design.

b. Tree, brush, and rock removal must be limited to that reasonably necessary for the construction of a home and its protection from fire. No clear cutting of trees within any building envelope will be permitted; however, it is understood that some selective pruning or removal of trees and shrubs will be necessary for the development of any homesite.

c. In many cases, the roof is the largest and most important visual element of a structure. The overall profile and articulation of the roof should be sufficiently irregular to break up anything that would otherwise appear too boxy or discordant with the landscape or neighboring structures. The roofs of all two-story homes should include single-story elements. For both one and two-story residences, the roof profile should be richly varied, including individual masses of sufficient size, in plan and elevation, to convey the desired result.

d. Exterior materials should generally be natural materials that blend and are compatible with the native landscape of the specific homesite. The predominant exterior materials shall consist of stone and wood. The allowable wood materials include shingles, beveled or tongue-and-groove board siding, logs, board-on-board or board and batten siding. This provision would not preclude the use of smooth T-111 siding with battens nailed to the exterior on 16-inch centers; however, the use of grooved T-111 siding is not permitted.

e. Color can be described in terms of three attributes, including hue (its basic color), value (lightness and darkness), and chroma (intensity). When proposing colors for the exterior materials for a home, keep in mind the following:

- *Color is affected by architectural design. Planar surfaces will read lighter than those that involve a great deal of articulated shade and shadow.*
- *Color is affected by relationships. Colors must related to and be compatible with the natural landscape.*
- *Portions of buildings usually suggest special treatment, including the use of more than one color on a single structure. The combinations of these colors*

must be addressed in a skillful way to ensure quiet and complementary combinations are the results.

- *As a general guideline, light reflectance values for field and trim colors shall range from a low of 15 to a high or 40.*
- *Where more than one color is approved on a single structure, all color changes must be made at an inside corner.*

f. Driveway access and garage location lend significant shape to the design and placement of the home. One of the greatest contributors to negative feelings about residential subdivisions is the often-present row of garage doors aligned along the street with oversized driveways leading to them. When planning a house in this area, the view of the garage doors from the street must be minimized.

g. When considered in site planning, solar conscious design can provide for energy efficiency in space heating by allowing for seasonal solar exposure/screening. Appropriate solar exposure can also help reduce the amount of snow removal necessary to access a site in winter. Areas of pavement that receive sunlight in winter often clear themselves after several cloudless days whereas north-facing and shadowed areas may retain snow for many consecutive days.

h. Refuse enclosures must be provided and must accommodate a minimum of two (2) covered 32-gallon plastic refuse containers on wheels. The doors must be designed to prevent the attempts of bears and other animals trying to infiltrate the trash area. Special attention to door thickness and construction, hinges, latches, and knobs will be required to prevent sabotage by scavenging animals. These refuse enclosures must be proximate to the street for ease of access by refuse collectors; however, they must also be architecturally compatible with the residence on the same parcel and screened from street view to the maximum degree possible.

i. Walls, screens, or fences may be allowed when they are proposed as a visual extension of residences or other residential accessory structures and when they delineate a yard area near a residence (or accessory structure). Such walls, screens and fences should use materials and finishes consistent with the design materials used on the residence. If fences are constructed along lot boundaries, such fences shall allow for the reasonable passage of wildlife. Chain-link fences are prohibited except where they are not visible from public roadways, trails, and adjoining residential or recreational uses.

j. In most cases driveway slopes are required to be less than 8% overall and may not exceed a 12% gradient at their steepest part. Additionally, for safety considerations, there must be provided a near-level (<2%) transition area of at least 16 feet between slopes and garage doors and a near-level transition area of at least 8 feet between slopes and the edge of the pavement at the roadway.

k. The Specific Plan shall also include the following design considerations:

- *Separate design guidelines for the golf course and clubhouse facilities that reflect the forested, rural nature of the area;*
- *Pedestrian and alternative vehicular entrances to the historic downtown from the project;*
- *A circulation alternative that does not preclude a roadway connection from the project site to Yankee Jim's Road;*
- *Provisions for transit and park & ride facilities (including school bus stops);*
- *Street lighting and other outside lighting should incorporate "dark skies" principles;*
- *Gated communities shall be precluded; and,*
- *Provisions for public play shall be incorporated into the golf course approvals.*

Impact 3.2.2 Aesthetic impacts due to tree removal, grading and new construction.

Removal of trees to allow for development of portions of the project site, road construction, and grading for building pads, drainage, and recreational facilities will alter the form and appearance of the project site. The form and appearance of the project site has been altered over time from its original natural state to one that has been disturbed by logging and mining operations. Further alteration of the site, such as cut and fill slopes and tree removal to allow for construction of the golf course and other facilities and structures, would result in substantial changes in the form and appearance of the project site.

Under the provisions of the 1981 Foresthill General Plan and the Placer County General Plan, new development on the project site must comply with the applicable policies and implementation techniques of the respective plans. New development on the project site must also comply with the Placer County Rural Design Guidelines, the Placer County Design Guidelines Manual, the Placer County Landscape Design Guidelines, the Placer County Grading, Erosion, and Sediment Control Ordinance, and the Placer County Tree Removal Ordinance. Because compliance with these ordinances and guidelines is required at such time as plans are submitted for grading and the design review process, compliance with the respective guidelines is not included as mitigation. If any ordinances or guidelines are amended, superseded or replaced (e.g., by the proposed Foresthill Divide Community Plan), the new guidelines will apply to the project (unless a development agreement executed by the County and the applicant provides otherwise).

While compliance with these ordinances and guidelines will assure that the change in form and appearance is more natural and aesthetically pleasing, the changes will remain substantial and the impact is considered a ***potentially significant impact.***

Mitigation Measure

Implementation of the following measures will reduce aesthetic impacts, *to a less than significant level:*

3.2.2a. *Project design shall incorporate screening measures to minimize the visibility of structures and graded areas. Natural landforms and vegetation shall be utilized for screening structures, access roads, building foundations, and cut and fill slopes.*

3.2.2b. *Land alterations for the project shall comply with the following guidelines:*

a. Limit cuts and fills;
b. Limit grading to the smallest practical area of land;
c. Limit land exposure to the shortest practical amount of time;
d. Replant graded areas with native or non-invasive exotic species to ensure establishment of plant cover before the next rainy season; and
e. Create grading contours that blend with the natural contours on site or with contours on property immediately adjacent to the area of development

3.2.2c. *New roads, parking and utilities shall be designed to minimize visual impacts. Unless limited by geological or engineering constraints, utilities shall be installed underground, and roadways and parking areas shall be designed to fit the natural terrain.*

3.2.2d. *The project shall comply with the "Forest Ranch Specific Plan Area Architectural/Design Standards."*

3.2.2e. *Future development proposals shall be submitted to the Foresthill Design Review Committee (Foresthill Forum) to ensure consistency with design standards and community concerns.*

Also see Mitigation Measure 3.4.1-11 regarding tree removal. However, the County's Tree Preservation Ordinance only protects oak trees and native trees in riparian areas.

Impact 3.2.3 Introduction of new sources of light and glare with buildout of the project site, and impacts of increased lighting on the night sky.

The change in landscapes from an open space and forested environment to one that is partially developed for rural and low density residential, multi-family residential, professional office and recreational uses will result in the introduction of significant additional sources of light and potential glare. These sources include automobile headlights, residential and office security lighting, signage, and lighting associated with the RV campground, equestrian center, and golf course and related facilities. It is unknown whether the golf course will include a lighted driving range, and whether the project will include street lights. Because the project site is essentially devoid of light at the present time, this change will be substantial. Illumination of signs is addressed in Section 17.54.170F of the Placer County Zoning Ordinance. Lighting is also addressed in the Placer County Design Guidelines Manual, which provides for the screening of lighting adjacent to residential areas, directing lighting away from roadways, and minimization

of upward lighting. The Placer County General Plan also discourages lighting that shines unnecessarily onto adjacent properties or into the night sky (Policy 1.0.9).

One source of technical information on the effects and mitigation of light and glare is the International Dark Sky Association. Although the Association recognizes the necessity for night lighting to maintain security, safety, utility and an attractive environment, it has identified a number of impacts from poorly designed night lighting, including urban sky glow, glare, light trespass, and energy waste. The Association recommends use of quality lighting designs, shielding and shining lights downward, use of timing controls, use of the correct amount of light, and the use of energy efficient light sources.

Because the project as proposed at this time contains no information on lighting design and the control of light and glare, and because other local regulations are relatively limited and general in nature, there is the potential for substantial light or glare that could adversely affect nighttime views in the area. This impact is, therefore, considered ***potentially significant.***

Mitigation Measure

Implementation of the following measures will reduce light and glare impacts to a *less than significant level:*

3.2.3a. *Outdoor security lighting at recreational facilities, professional offices, and multi-family residences shall be controlled by timers.*

3.2.3b. *Outdoor security lighting on individual single family residences shall be restricted through the design review process.*

3.2.3c. *The golf course driving range shall not be lighted.*

3.2.3d. *A lighting plan shall be prepared and submitted to the County for approval in conjunction with permits for multi-family development, professional office development, and development of recreational facilities. The lighting plan shall comply with the guidelines provided by the International Dark Sky Association. Night lighting from the exterior of a building and the project's boundaries shall be limited to that necessary for security, safety, and identification. Night lighting shall also be screened from adjacent residential areas and not be directed in an upward manner or beyond the boundaries of the parcel on which the building is located. Alternatively, a Dark Sky Ordinance is adopted by the County by such time as application is made for a permit, the project shall comply with the ordinance.*

3.2.3e. *New lighting shall be directed downward and shall not shine onto adjacent properties.*

3.3 COMMUNITY DEVELOPMENT

The Community Development Section discusses impacts related to Population and Housing, and Public Services and Utilities, including Solid Waste, Parks and Recreation, Schools, Wastewater Treatment, and Water Supply and Distribution.

3.3.1 POPULATION AND HOUSING

Setting

According to the California Department of Finance (DOF), Placer County is experiencing the fifth highest percentage increase in growth rate of California counties. The County has an estimated January 1, 2002 population of 264,900, and the growth rate continues to exceed that of the State and the greater Sacramento area. According to the draft Foresthill Divide Community Plan, "Foresthill and other unincorporated areas will absorb a portion of this growth, but geographical isolation, rugged terrain, and proactive community planning will slow growth to a rate that will not exceed buildout capacity."

Available population data for the Foresthill Divide varies according to the source and the geographical area that it covers. For example, 1990 Census data available for the community of Foresthill shows a total population of 1,409 persons. The FDCP Plan area covers an area much larger than the Foresthill townsite and Todd's Valley area, where the population is concentrated. Census Tract 202 roughly correlates with, but is larger than, the Plan area; 1990 Census data gives a population of 4,699 persons for this area. Based on their knowledge of the area, the County and the Foresthill Divide Community Plan Team believe that an undercount occurred in the 1990 Census. Estimates from the Sacramento Area Council of Governments (SACOG) show a 1990 population of 3,400. These population counts and projections for Placer County, the unincorporated areas, and the community of Foresthill are shown in Table 3.3-1. The "Regional Analysis District" used by SACOG for Foresthill is smaller than the Community Plan area, but does include the principal population and employment centers.

Table 3.3-1
Population Projections

Geographical Area	Population 1990	Population 2000	Population 2005	Population 2010	Population 2015	Population 2020
Placer County (1)	174,979	248,399	287,401	325,648	358,746	391,245
Unincorporated Area (2,3)	83,475	101,500	101,300	121,400	136,500	148,200
Foresthill (2)	3,400	4,012	4,247	4,399	5,168	5,953

Source: (1) DOF, (2) SACOG, (3) U.S. Census 2000.

The County of Placer estimates the current population of the Plan area to be 5,600 persons. Using a method of extrapolation, based on a percentage of the County unincorporated population, current population estimates and projections have been calculated for the Plan area. If the FDCP is adopted as proposed, when the Plan area reaches its holding capacity, which occurs when the area is completely built out, the total population is projected to be approximately 13,500 persons, with a maximum number of dwelling units of 5,415. In comparison, the population holding capacity of the existing 1981 Foresthill General Plan and the

additional area included in the FDCP area is 28,000±, with no maximum number of dwelling units stated in the Plan. Residential densities would therefore decrease by more than half under the FDCP in comparison to the Foresthill General Plan and additional area included in the FDCP area.

The primary housing type in the Foresthill area is the single-family dwelling, with 85 percent of units being of that type. Eleven percent of housing units within the FDCP area are mobile homes, and 4 percent are multi-family dwelling units, as shown in Table 3.3-2. The need for future housing is based on the community's projected population. Under the proposed FDCP, it is estimated that as many as 118 additional mobile home units will be needed in the Plan area by 2010, and up to 43 units of multi-family housing. The proposed Plan assumes that single family housing will continue to be the dominant housing type, and that an additional 915 units will be needed by 2010. With regard to affordable housing, the draft Plan includes the following statement:

> Since the Foresthill Divide area does not include a substantial amount of land available for higher density residential uses or the infrastructure necessary to provide affordable housing, it is expected that the Plan area will provide a minimal amount of affordable housing for the county. Areas in the County which have the resources to provide affordable housing include Auburn/Bowman, Tahoe City/Kings Beach, and new development areas designated during the County-wide General Plan Update. The Plan area will need to rely primarily on second residential units and a small number of units that may be constructed within the mixed use districts to provide the area's affordable housing.

Table 3.3-2
Foresthill Divide Housing Types, 1996

Housing Type	Housing Units	Vacant Units	Occupied Units
Single Family Dwelling	1,743	87	1,656
Multi-Family (2-4)	90	5	85
Mobile Home Park	222	11	211
TOTAL	2,055	103	1,952

Note: These figures were derived from the 1990 census and the number of building permits issued within census tract 202 between 1990 and 1996. These figures assume that all the building permits issued resulted in the construction of a new dwelling unit.
Vacancy Rate: the 1990 census indicated a vacancy rate of 17.35% for census tract 202. This appeared to be a very high rate for an area that is not considered a resort community. A vacancy rate of 5% represents a more common vacancy rate for a non-resort community.
Source: Placer County Planning Department.

Placer County General Plan Goals and Policies

Land Use

Goal 1.M: To work toward a jobs-housing balance.

1.M.1. The County shall concentrate most new growth within existing communities emphasizing infill development, intensified use of existing development, and expanded services, so individual communities become more complete, diverse, and balanced.

1.M.2. The County shall encourage large residential projects to be phased or timed to occur simultaneously with development that will provide primary wage-earner jobs.

1.M.3. The County shall encourage the creation of primary wage-earner jobs, or housing which meets projected income levels, in those areas of Placer County where an imbalance between jobs and housing exists.

Housing Element

Goal A: To provide a continuing supply of affordable housing to meet the needs of existing and future Placer County residents in all income categories.

A.5. The County shall encourage "mixed-use" projects where housing is provided in conjunction with compatible non-residential uses.

A.8. The County shall evaluate the adoption of an inclusionary housing ordinance as a means of integrating affordable units within new residential development. This ordinance will create the following hierarchy of methods to accomplish this goal:

1. Construction of housing on-site.
2. Construction of housing off-site.
3. Dedication of land for housing.
4. Payment of an in-lieu fee.

A.9. Housing for low-income households that is required in a new residential project shall be dispersed throughout the project, to the extent practical, given the size of the project and other site constraints.

A.11. The County shall require low-income housing units in density bonus or inclusionary projects to be available at the same time as the market-rate units in the project.

A.16. The County will encourage the development of multi-family dwellings in locations where adequate infrastructure and public services are available.

Goal B: To promote quality residential development in the County.

B.1. The County encourages residential development of high architectural and physical quality that is compatible with neighboring land uses.

Foresthill General Plan Goals and Policies

Population and Housing

Goal: Provide sound and adequate housing for all economic segments of the community, while ensuring consistency with existing land uses.

1. Encourage higher density residential development in areas of available public services and consistent surrounding land uses.

4. Discourage a population density within the plan area that requires a high degree of urban services.

Foresthill Divide Community Plan Policies

Population and Housing

3.A.1-1 The County shall encourage residential development in Foresthill of high architectural and physical quality, compatible with neighboring land uses.

3.A.2-1 The County shall adopt policies, programs and procedures with the intent of achieving its fair share regional housing allocation, including the numbers of units for each income classification.

3.A.2-3 The County shall encourage the development of a commercial/residential Mixed-Use area in the Core Area to augment the supply of housing and increase affordable housing opportunities on the Foresthill Divide.

Impacts and Mitigation Measures

Impact Evaluation Criteria

Based on Appendix G of the State CEQA Guidelines, the project would normally be considered to have a significant adverse impact on population and housing if it would:

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

- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere;

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

Development which is inconsistent with relevant Placer County General Plan and Foresthill General Plan policies should be considered potentially significant. Because the Foresthill Divide Community Plan is not yet adopted, but has been developed by the Foresthill Community Plan Team and is currently under review for possible adoption, development which is inconsistent with relevant proposed policies may be considered potentially significant, although it is recognized that policies may not be adopted in their current form.

Impact 3.3.1-1 Development of the proposed project would increase the population in the community of Foresthill (growth-inducing impact.)

The Forest Ranch project proposes construction of a total of 2,213 housing units, of which 1,700 are proposed to be age-restricted (55 years of age or older). The remaining 513 housing units will consist of 216 townhomes and 297 single family detached residential dwellings. The proposed recreational vehicle park would accommodate 100 units, but it is assumed that these will be visitors, not permanent residents. Average household size, according to the 2000 U.S. Census, is 2.63 persons per household for Placer County, 2.61 for Census Tract 202 (which includes Foresthill), and 2.66 for the Foresthill Census Designated Place (CDP). Using the figure of 2.66 persons per household for the non-age restricted units, and the figure of 1.7 persons per household for the age-restricted units, it can be estimated that a total of 4,255 persons would reside on the project site at buildout. Currently, no persons are living on the project site.

The 2000 U.S. Census population for the Foresthill CDP is 1,791, and for Census Tract 202 (which roughly correlates with, but is larger than, the proposed FDCP Plan area) is 5,794. As stated in the Initial Study for this project:

> The GPA and REA proposals will cumulative[ly] exceed official regional and local population projections. The Foresthill Divide has a historically slow growth rate (less than 2% for the past ten years). Approval of the project proposals has the potential to accelerate the pace of development beyond the capability of the community to adapt. The area in question is undeveloped (with the exception of several logging operations within the recent past). A project (or projects) that would likely result from approval of the GPA and REA would induce substantial growth into an area not previously designated for it.

In comparison to the total 2000 population of the Foresthill CDP and Census Tract 202, the addition of up to 4,255 persons represents a substantial increase. Appendix G of the CEQA Guidelines provides that a project would normally be considered to have a significant impact if it would induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

The proposed project will result in a population of 4,255 people on the project site which exceeds the population anticipated under both the existing Foresthill General Plan and the draft Foresthill Divide Community Plan. The existing General Plan designates the site for a total of 591 units or approximately 1,572 persons (based on 2.66 pph). The draft Foresthill Divide

Community Plan designates the site for 533 units or approximately 1,418 persons. The proposed project represents substantial population growth beyond that envisioned in both the adopted Foresthill General Plan and the draft Foresthill Divide Community Plan.

While the population growth rate in Placer County has been among the highest in the state, the population growth rate in the Foresthill area has been low (approximately 1.5 to 2.11% per year). Assuming a phased buildout of the Forest Ranch project of 10% per year, it can be estimated that an average of 425 additional persons would populate the site each year, which would represent an annual growth rate of 7.3 percent (compared to the 5,794 population figure), and 24.7 percent (compared to the 1,791 figure). Both percentages substantially exceed the annual average growth rate for the community. Therefore, the growth-inducing impact of this project is considered ***significant and unavoidable***.

Mitigation Measure

Other than selecting a Project Alternative with fewer dwelling units (and therefore lower population), no mitigation measures are available.

Impact 3.3.1-2 Development of the proposed project would promote an imbalance of jobs and housing in the community of Foresthill.

Of the proposed 2,213 housing units, 1,700 would be age-restricted, presumably marketed to persons at or near retirement age. A total of 513 housing units would be non-age restricted, and available to working families.

The proposed project contains some employment-generating uses: the recreational vehicle park, golf course and related uses, equestrian center, and professional offices. The applicant has estimated that the project would generate significant direct local employment, but has not provided an estimate of the number of jobs that would be created. In the absence of a project specific analysis of the potential for off-site job creation and local employment opportunities it would be speculative to attempt to estimate the number of off-site jobs that could potentially occur in the future. While it is recognized that some jobs may be created, this analysis is limited to the number of jobs that will be generated by the project itself. The number of non-age-restricted housing units will exceed the jobs generated by the project site, thus contributing to the existing jobs/housing imbalance in the Foresthill community. With the exception of some management and professional positions, most of the new employment would not be high (or "living") wage positions (positions that would allow employees to purchase market-rate housing or pay market rents within the project site).

The 1981 Foresthill General Plan does not address jobs/housing balance. The Placer County General Plan includes a goal "To work toward a jobs-housing balance" (Goal 1.M). It also includes the following policies:

1.M.1. The County shall concentrate most new growth within existing communities emphasizing infill development, intensified use of existing development, and expanded services, so individual communities become more complete, diverse, and balanced.

1.M.2. The County shall encourage large residential projects to be phased or timed to occur simultaneously with development that will provide primary wage-earner jobs.

1.M.3. The County shall encourage the creation of primary wage-earner jobs, or housing which meets projected income levels, in those areas of Placer County where an imbalance between jobs and housing exists.

It can be argued that the proposed project, while not infill development per se, is an expansion of the existing Foresthill community. It is adjacent to existing development in the community. The proposed FDCP is designed to encourage and accommodate more primary wage-earner jobs in the community; however, it has not yet been adopted. While the proposed project (which is a large residential/recreational project) will provide jobs, the number of jobs is not known, and most will not be primary wage-earner jobs. The proposed project increases the number of housing units anticipated under the FDCP by 1,680 units on the project site. This emphasis on residential development exacerbates the existing jobs/housing imbalance. The FDCP has addressed this jobs/housing imbalance through the designation of mixed use areas. Although the FDCP draft EIR concludes that the Plan improves the jobs/housing imbalance, the proposed project, with 1,680 more residential units on this site than analyzed under the FDCP is contributing to the jobs/housing imbalance; therefore, this EIR reaches a different conclusion. Although the project may at some point result in additional land being designated for commercial development, the project itself does not guarantee that this will ever occur. Because the proposed project would contribute to the lack of jobs/housing balance in the Foresthill community, this impact is considered ***significant and unavoidable***.

Mitigation Measure

Other than selecting a Project Alternative with fewer dwelling units and/or more jobs-generating uses, no mitigation measures are available.

Impact 3.3.1-3 Impact of the proposed project on compliance with the Housing Element of the Placer County General Plan and meeting the housing needs in the community of Foresthill.

The proposed project would add a total of 2,213 housing units to the housing stock of Foresthill and the Placer County unincorporated area. Senior citizens are considered a "special needs" group under the Placer County Housing Element, and the project is anticipated to provide 1,700 age-restricted housing units. The Placer County Housing Element includes the following policy: "The development of housing for seniors, including congregate care facilities, shall be encouraged" (Policy E.1.) The GPA and re-zoning applications do not contain any mechanism to require that there will be age-restricted units as part of this project.

The project application does not provide information on the number of below-market-rate housing units that would be provided, but states that "A mixture of housing options will be provided from town homes to rural residential parcels. Affordable housing units will be provided in accordance with County policy."

Placer County has recently updated its Housing Element and is considering adoption of an Inclusionary Housing Ordinance. The Housing Element also includes the following relevant policies:

A.5. The County shall encourage "mixed-use" projects where housing is provided in conjunction with compatible non-residential uses.

A.9. Housing for low-income households that is required in a new residential project shall be dispersed throughout the project, to the extent practical, given the size of the project and other site constraints.

The Draft Inclusionary Housing Ordinance requires that at least 15 percent of all newly constructed dwelling units in a residential project shall be developed, offered to, and sold or rented to very low, low, and moderate-income households, at an affordable housing cost, as follows:

- *Requirements for owner-occupied affordable units.* Sixty percent of the affordable units which are required to be constructed in connection with the construction of market rate units intended for owner-occupancy shall be available at affordable sales prices to moderate-income households. The remaining forty percent of the required affordable units shall be available at affordable sales prices to low-income households.

- *Requirements for renter-occupied affordable units.* Sixty percent of the affordable units which are required to be constructed in connection with construction of rental market rate units shall be available at affordable rents to low-income households. The remaining forty percent of the required affordable units shall be available at affordable rents to very low-income households.

The Draft Ordinance includes alternatives to providing the affordable housing units on-site at the residential development. Projects proposing to meet the minimum requirement for affordability through equivalency must submit a proposal to the Planning Director for approval. The definitions of "affordable sales price" and "affordable rent" are set forth in the Draft Ordinance.

Because the proposed project does not specify the number or location of non-market-rate ("affordable") owner-occupied and renter-occupied housing units, or provide a mechanism to require the anticipated 1,700 units be age restricted, this impact is considered ***potentially significant***.

Mitigation Measures

Implementation of the following measures will reduce the potential impact on affordable housing to a level that is ***less than significant***:

3.3.1-3a. *Each tentative subdivision map and multi-family housing project shall comply with the Placer County Inclusionary Housing Ordinance in effect at the time each project is proposed.*

3.3.1-3b. *Alternatively, the developer shall submit for County approval a comprehensive inclusionary housing plan for the entire project that demonstrates compliance with the Placer County Inclusionary Housing Ordinance in effect at the time it is submitted.*

3.3.1-3c. *The Specific Plan submitted for the project site shall specify the mechanism that will be implemented to require that 1,700 of the 2,213 units will be age-restricted.*

3.3.2 PUBLIC SERVICES AND UTILITIES

Setting

This section of the EIR addresses public facilities and services including law enforcement, fire protection, solid waste collection, parks and recreation, schools, road maintenance, power, wastewater treatment and disposal, water supply and distribution, and storm drainage.

Law Enforcement

The Placer County Sheriff's Department provides law enforcement services to the Foresthill area and the project site. The Department is organized into five divisions, three of which provide services to the area: corrections, coroner, and marshal. The Sheriff's Department also provides patrol and investigation services out of the Foresthill substation. Traffic enforcement and accident investigations are provided by the California Highway Patrol. The Sheriff's Department uses volunteers to assist sworn officers in rural communities such as Foresthill.

Fire Protection/Emergency Medical Services

The project site is located within the boundaries of the Foresthill Fire Protection District (see Figure 3.3-1). Fire protection within the townsite is currently provided by volunteers of the Foresthill Fire Protection District. The District encompasses 72 square miles, of which about 30 percent is in the Tahoe National Forest. The District has three fire stations, only two of which are active stations. The third structure functions as an equipment storage building. The closest station is Station #1, located approximately one quarter mile from the project site at 20540 Foresthill Road.

The Insurance Services Organization (ISO) classifies fire districts by level of hazard on a scale of 1 to 10, with 1 being the best rating. An ISO rating of 9 or 10 is considered standard for unimproved lands. The District maintains a Class 6 ISO rating within the area where fire hydrants are available, and a Class 9 ISO rating for unimproved lands.

The Foresthill Fire Protection District is currently working on a five-year plan. Although the plan is not completed, there are two predictable generalizations: 1) development in the area will eventually require additional fire stations and facilities, and 2) full-time fire fighter coverage will

eventually be necessary. Currently, a 48-cent per square foot development fee is assessed upon new development to support fire protection services.

In addition to the Foresthill Fire Protection District, Placer County contracts with the California Department of Forestry and Fire Protection (CDF) to provide seasonal fire protection in outlying areas identified as State Responsibility Areas. The closest station is located at 25150 Foresthill Road. Under cooperative protection agreement, the U.S. Forest Service provides mutual aid to the Foresthill Fire Protection District and CDF for emergency services (wildland and structure fires, medical aids and accidents). Unlike CDF, the U.S. Forest Service station is staffed year round.

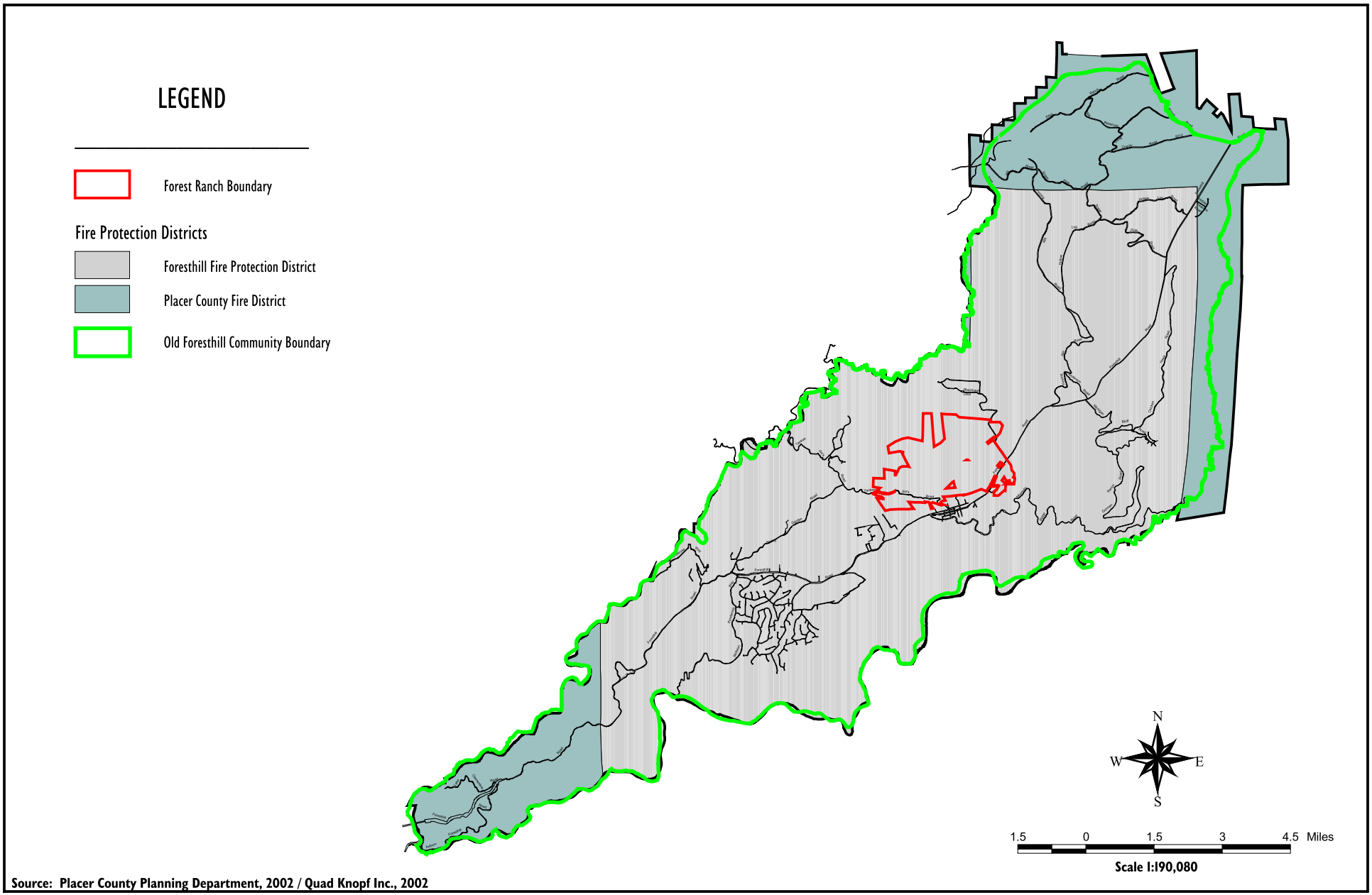
Solid Waste Collection and Disposal

Auburn Placer Disposal Service (APDS) operates a transfer station on Patent Road in Foresthill. The site is owned by Placer County but operated by APDS as part of their exclusive franchise agreement for solid waste collection in Franchise Area 4. The current permit, issued by the Placer County Solid Waste Local Enforcement Agency, allows the facility to operate Friday through Monday. The current design and permitted capacity is 604 cubic yards per day (82.1 tons per day.) Owners of all developed parcels in the Foresthill area must either subscribe to garbage collection service or pay a mandatory parcel fee for operation of the Foresthill Transfer Station. This fee allows residents full access to this facility with no additional gate charges. APDS provides curbside collection service to this area, but the service is not mandatory. Waste collected by APDS and waste from the transfer station are transported to the Western Placer Waste Management Authority Materials Recovery Facility (MRF) near Roseville for processing. Residuals from this processing are transported to the Western Regional Sanitary Landfill (WRSL) for disposal.

Parks and Recreation

There is both high demand for and high availability of passive recreational opportunities on the Foresthill Divide. The Tahoe National Forest incorporates many trails for use by pedestrians, equestrians, bicyclists, and off-road vehicle enthusiasts. The Foresthill Trail Alliance is active in the maintenance and acquisition of trails within more populated areas of the Foresthill Divide.

Residents of the Divide have access to a variety of regional recreational opportunities. The proximity of the Tahoe National Forest (TNF) lands, Bureau of Land Management (BLM) lands, and U.S. Bureau of Reclamation (BOR) lands provides residents and visitors with areas for hiking, boating, fishing, off-highway vehicle (OHV) usage, swimming, and camping. Sugar Pine Reservoir, Big Reservoir (Morning Star Reservoir), and Oxbow Recreation Area are federally owned recreation areas that offer camping, boating, winter recreation, hiking, and OHV facilities. The North and Middle Fork American River supports a large commercial rafting business during the summer months. Auburn State Recreation Area (SRA), a 35,000- acre area located along the North and Middle Forks of the American River extending east from Auburn, includes Lake Clementine and 13 other areas with fully developed facilities for environmental education, camping, boating, mountain biking, whitewater rafting, gold panning, OHV riding, and hiking. The Auburn SRA is administered by California State Parks under contract with the BOR.



Source: Placer County Planning Department, 2002 / Quad Knopf Inc., 2002

Quad Knopf

FOREST RANCH EIR

Fire Protection Districts

Figure 3.3-1

There is a small variety of recreational opportunities closer to the community of Foresthill. All organized recreational programs in the community are operated and managed by volunteer boards. Foresthill Community Park (Leroy E. Botts Memorial Park) is a 15 acre community park located on Harrison Street between Church Street and Gold Street. The park facilities are heavily used, especially on weekends. Park facilities include softball and baseball fields, a tot lot, picnic area, horseshoe pits, restrooms, a gazebo and barbecue pit. There is a public swimming pool that is operated by volunteers, but which has substantial maintenance needs. Within the Todd's Valley area, there are 41.1 acres of unimproved parklands. The Todd's Valley Pond is a 26.7 acre site that includes a fishing pond. Two additional park sites are unmaintained, unimproved open space totaling 14.4 acres. Foresthill Elementary School and Foresthill Divide Middle School, 6 acres and 16 acres respectively, provide additional open space and fields that are widely used after hours for community sports programs. The new Foresthill High School site and the adjacent elementary school site will contribute an additional 30 acres to community recreation facilities. The draft Foresthill Divide Community Plan proposes creation of a locally managed recreation district with a stable funding source to operate and maintain recreational facilities.

Schools

The project site is within the boundaries of the Foresthill Union School District and the Placer Union High School District. The Foresthill Union School District is currently comprised of two schools. Foresthill Elementary School serves grades Kindergarten through 5, and as of August 2002, 325 children were enrolled. Foresthill Divide Middle School serves grades 6 through 8, and August 2002 enrollment totaled 291. High school students currently travel to Auburn to attend one of four high schools within the Placer Union High School District. Enrollment in the entire Placer Union High School District totaled 4,673 students in August 2002, of which it is estimated that 350 to 400 live in the Foresthill area.

Enrollment within both districts exceeds capacity. With a 2002 total of 616 students enrolled in the Foresthill Union School District, enrollment exceeds capacity, although enrollment has dropped from a total of 817 students in 1995. The Placer Union High School District also reports enrollment exceeding capacity, which creates a safety problem in the bus loading area and with overuse of the septic system.

The high school and elementary school districts have jointly purchased a 100-acre site (a portion of the former mill site), of which 40 acres will be occupied by a new high school, 20 acres will be occupied by a new elementary school, and 50 acres will be commonly owned. A bond issue was passed by the voters to build a new high school, which is projected to be occupied by 2004.

Road Maintenance/Snow Removal

The Placer County Department of Public Works is responsible for maintaining County highways in the community of Foresthill and surrounding areas. This includes snow removal.

Power/Fuels

Electrical service is provided to residents of Foresthill by Pacific Gas & Electric Company (PG&E). No natural gas service is provided; however, propane may be used on individual parcels.

Wastewater Treatment and Disposal

There is no community sewer system in Foresthill; the only community sewerage systems (i.e., community leach field, oxidation ponds) in the vicinity are those serving mobile home parks, two apartment complexes and four houses on one lot. The proposed FDCP assumes that future growth will continue to be served by septic systems, unless required by the Placer County Environmental Health Services to connect to a community sewer system. As stated in the draft Plan:

> Sewer systems may be necessary for development of higher densities that generate high sewage flows or concentrate large quantities of sewage in limited areas. The effectiveness of septic systems remains limited in some areas by shallow soils, massive granitic rock complexes, and excessive slopes that are characteristic of the Plan area. The FDCP provides that the flat region running through the center of the Plan area be served by individual sewage disposal systems on parcel sizes of 2.3 acres or more. Large areas northwest and southwest of this flat area "are marginal to unacceptable for the proper functioning of individual sewage disposal systems", and sewage systems should be located on parcels ranging from 4.6 to 20 acres or larger. There are areas within the Plan area, however, that do not have shallow soils and are suitable for individual septic systems, such as Todd's Valley. Other areas may be suitable with the use of engineered septic systems. Soil suitability for septic systems has been taken into consideration in development of the FDCP.

The proposed project would consist of a planned community consisting of primarily residential and recreational uses with the majority of the residential units served by a community wastewater collection, treatment and disposal system (see Table 3.3-3). This discussion is at a conceptual level based on the preliminary study that was done. (See Appendix B of this EIR) A detailed layout of the sewer system is not possible since road alignments and property lines are unknown. The conceptual design for the Forest Ranch wastewater collection system is based on a conventional gravity-flow collection system with sewer lift stations and a single treatment facility.

Table 3.3-3
Proposed Land Use Designations & Equivalent Dwelling Units (EDU's)

Land Use Designation	Acreage	# Units	Sewer Service	Connected EDU's

Land Use Designation	Acreage	# Units	Sewer Service	Connected EDU's
RR-5 Rural Residential	189	37	Septic	0
RR-2.3 Rural Residential	71	29	Septic	0
RR-1 Rural Residential	309	271	Community	271
LD-2 Low Density Residential	190	334	Community	334
LD-3 Low Density Residential	291	698	Community	698
MD-4 Medium Density Residential	140	448	Community	448
MD-6 Medium Density Attached Residential	83	396	Community	396
RES Resort	14		Septic	0
GC General Commercial	5		Community	10
OS-Greenbelt and Open Space	1,323			0
Totals	2,615	n/a		2,157

Design Flows. Design flows for the sizing of the collection system are anticipated to be consistent with the requirements defined in Section 6 of the Placer County Land Development Manual. Typical requirements for sizing of pipelines would include 400 gpd/Equivalent Dwelling Unit (EDU) plus a peaking actor that varies with the number of units served by the pipeline in consideration. The value of 400 gpd/EDU is meant to accommodate a reasonable amount of infiltration and inflow and the peaking factor accounts for diurnal fluctuations in flow.

Placer County standards require a value of 250 gpd/EDU to be used for estimating the average dry-weather flow (ADWF) at the treatment plant. With an anticipated 2,157 EDU's to be served within the project, estimated buildout ADWF would be 540,000 gpd. Average wet-weather flow (AWWF) at a treatment plant will often be higher than ADWF by a factor of 2-3 or even higher in older systems. For preliminary design purposes, a value of 400 gpd/EDU was used for AWWF resulting in a total anticipated flow of 860,000 gpd at the treatment plant during winter months.

Collection System. The conceptual design for the Forest Ranch wastewater collection system is based on a conventional gravity-flow collection system with sewer lift stations and a single treatment facility. It is anticipated that at least two sewer lift stations will be required to serve the project. Depending upon the layout of the streets and the homes, it is possible that more would be required. Typical sewer lift stations would consist of a wet well and two submersible pumps. Most agencies require auxiliary storage or a generator to be at the site.

Treatment Design. It is anticipated that the method of wastewater disposal will be golf course irrigation and subsurface drip irrigation. A review of existing Waste Discharge Requirements (WDR) for systems that reclaim wastewater for purposes of golf course irrigation show that effluent limitations are often in the range of 30mg/l Biochemical Oxygen Demand ($BOD_{5)}$, 30 mg/l suspended solids, and often have no defined limit on nitrogen.

The EPA recently promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards for waters in the State of California pursuant to section 303(c)(2)(B) of the Clean Water Act (CWA) if those pollutants could be reasonably expected to

interfere with the designated uses of the State's waters. The new water quality criteria rule, known as the California Toxics Rule (CTR), established a number of criteria for aquatic life and human health. The CTR also established a compliance schedule provision.

Since no stream discharges are anticipated in the case of the Forest Ranch treatment plant, it is unclear exactly what effect the California Toxics Rule will have on the requirements of the NPDES permit. Recent NPDES updates for land disposal systems seem to be focusing on monitoring of groundwater so as to make a determination whether the disposal of treated effluent is having a detrimental effect on groundwater in the area. It is anticipated that monitoring wells will be installed in various locations around the storage ponds and around the disposal areas.

One of the primary focuses of the monitoring wells is that of monitoring nitrogen levels. Nitrogen contamination seems to be one of the most significant problems with groundwater contamination due to human activity and is of concern with wastewater disposal. Factors that will minimize the potential for contamination of groundwater supplies for this project include the high quality soils in the area, nitrogen uptake by grasses on the golf course, the depth to groundwater, and the nitrogen reduction that will take place in the treatment plant.

Disposal Options. Wastewater disposal is one of the most significant challenges associated with the project site due to the desire to not discharge to any surface water body. The project proposes to utilize reclaimed wastewater for purposes of irrigation on the golf course. This concept is consistent with planning policies adopted by Placer County and the Regional Water Quality Control Board.

For planning purposes, it is assumed that the golf course will use at least 400,000 gpd during the summer months. This would be for purposes of irrigating the greens and the fairways only and is considered somewhat conservative. Since the golf course will only use reclaimed water during the summer, a significant challenge associated with the concept of wastewater reclamation is that of handling the water during winter months. The golf course demand is the lowest when flows from the treatment plant will be at their highest. Either the treated water must be stored in a reservoir until it is used or an alternative disposal method must be available. Since buildout flows are anticipated to be more than the golf course can use, an alternative disposal method is required.

Subsurface drip irrigation can provide an efficient method for disposal of treated effluent. A subsurface drip system disperses effluent below the ground surface through small diameter pressurized pipes and emitters. The "rough" areas of the golf course are a potential area that could be used for subsurface disposal of treated effluent. A preliminary layout indicates that the golf course will cover over 200 acres of total area. Since the groomed areas (tees, greens, fairways, driving range, etc.) will comprise less than 70 acres of the total, there should be at least 100 acres available for disposal of treated effluent in and around the golf course and near the treatment plant.

An evaluation was undertaken to determine the feasibility of disposing of all treated effluent on-site. The results of the evaluation provide an estimate of the required storage volume and the required disposal area. The analysis looks at various combinations of disposal field sizes and

reservoir storage requirements so as to determine the optimum combination. A portion of the storage could be incorporated into water features throughout the golf course, although the water features would need to be emptied prior to each winter season. The sizing of storage ponds will also be influenced by requirements of the California Division of Safety of Dams of the Department of Water Resources. Due to topographic limitations and the desire to limit the size of the reservoirs, it is anticipated that the desired storage capacity of 46 acre feet might be divided between at least two reservoirs.
The applicant's proposed wastewater disposal system is shown on Figure 3.3-2.

Water Supply and Distribution

Domestic water in Foresthill is principally supplied by the Foresthill Public Utility District (Foresthill P.U.D.). The P.U.D.'s water treatment facility, located in Foresthill, consists of a direct filtration treatment plant that delivers the supply through a gravity-fed system of 21 inch to 10 inch lines. The treatment facility treats an average of 600,000 to 700,000 gallons per day, with a peak day volume of 1.9 million gallons (mgd). The facility has the capacity to treat a maximum 3 million gallons per day. The P.U.D. supplies 900 acre feet annually of treated/delivered water supply to the current population of 5,600 residents. The draft FDCP reports that water supply and transmission facilities will serve the buildout population of 13,500; however, an expanded treatment facility will be needed within the next 10 years to accommodate growth and water treatment in excess of 3 mgd.

The Foresthill P.U.D. water supply consists of 2,707 acre feet per year of water from Sugar Pine Reservoir, and supplements the supply with an additional 200 acre feet from two domestic wells. These wells are not considered a reliable source of water for the buildout population since they dried up during the 1976-77 drought. The yield of 2,707 acre-feet is based on the District's adopted reliability standard that includes multiple drought years. Foresthill P.U.D. recently purchased Sugar Pine Reservoir from the BLM. In accordance with SB 610 (Sections 10910-10915 of the California Water Code), Placer County has requested Foresthill P.U.D. to provide a water supply assessment for the proposed project. The P.U.D. completed an assessment for the portion of the site within the District's boundaries and has also completed a water supply assessment that includes the entire project area (Appendix C). The current water demand is 1,154 acre-feet per year.

According to the report prepared by the Foresthill P.U.D., buildout of the existing service area would have a demand of 2,432 acre feet per year. This demand is well within the Districts available supply of 2,707 acre feet per year. There is 275 acre-feet available to serve areas outside the current District boundaries, within the District's Sphere of Influence.

Nick Welch Spring is located in the northeastern portion of the project site. According to the Foresthill P.U.D., the spring collection and diversion facility and water rights are owned by the District. The District has also indicated (in correspondence included in Appendix A of this EIR) that approximately 65 percent of the project site is not within current District boundaries (see Figure 3.3-3). The project site is within the District's Sphere of Influence. District Policy #6030.10 states: "Property must be annexed to the District prior to receiving District services.

Furthermore, unconditional commitments to provide water service to property and/or proposed developments will not be granted until said property is annexed to the District."

Information contained in the 1997 Timber Harvesting Plan approved for the project site (No. 2-97-070-PLA (3)) indicates that there are additional springs and water lines located on the project site, which are described as paraphrased below (numbers correspond to Figure 3.4-4a and Figure 3.4-4b in Section 3.4 of this chapter, and definitions of the watercourse classifications are provided in Appendix D of this EIR):

Nick Welch Spring, Class II, #53. This spring is located within the Second Brushy Canyon Creek drainage. The spring is located in the watercourse. Water is collected and transported via a water line to the Foresthill softball field. Vegetation associated with the spring consists of blackberries, alders, hardwoods and conifers. Ferns and fescues also occupy the site.

Class II, Spring, #54. This spring is located within the Second Brushy Canyon Creek drainage. The spring is located adjacent to and above the watercourse. This seep is conducting a small amount of flow which is surrounded by blackberries. Vegetation associated with the spring consists of blackberries, alders, hardwoods and conifers. Ferns and fescues also occupy the site.

Class II, Spring, #55. This spring is located near a covered mine shaft. Water is collected and transported to the Foresthill softball field water line. Associated vegetation includes manzanita, hardwoods and some conifers.

Class II, Spring, #56. This spring consists of a metal tank with a water line running to a residence that is directly south of the spring. The spring is currently used for irrigation.

Class II, Spring, #57. This spring is located above Bath House Road. The spring provides water to a surface water line that ends at a small pond. This water line runs south off the subject property and then back onto the subject property at the southern boundary.

Class IV Watercourses

Nick Welch Spring to Foresthill softball field water line, Semi-buried 4 inch water line, #58 and 59. This water line begins at Nick Welch Spring and Second Brushy Canyon Creek. The water line ends at the Foresthill Softball Park. This is a 4 inch water line that varies from surface to buried 18 inches deep. This pipe is currently charged but does not have any domestic uses. The last use was to deliver water to the softball park. The pipe consists of ascetic and metal sections. The water line has one lateral segment that runs approximately 500 from the east.

Buried Water Line, #60, Sugar Pine Water Line. This water line begins at Sugar Pine Reservoir and supplies water to the Foresthill water treatment plant which is located on a small parcel located along Foresthill Road. This is a 24 inch diameter steel pipe that is buried. Depth of water line varies using two design depths. These are "A" = surface to 5 feet deep and "B" = 5 to 10 feet deep. That portion of the subject property that contains the Sugar Pine pipeline is rated to 5 feet deep.

LAND USE SUMMARY

KEY	DESIGNATIONS	ACREAGE	#UNITS	PERCENTAGE
RR-5	RURAL ESTATE 2.3-4.6 AC MIN.	189 AC.	37	7 %
RR-2.3	RURAL RESIDENTIAL 1.0-2.3 AC MIN.	71 AC.	29	3 %
RR-1	RURAL RESIDENTIAL 1.0-2.3 AC MIN.	309 AC.	271	12 %
LD-2	LOW DENSITY RESIDENTIAL 2-4DU/ AC.	190 AC.	334	7 %
LD-3	LOW DENSITY RESIDENTIAL 2-4DU/ AC.	291 AC.	698	11 %
MD-4	MEDIUM DENSITY RESIDENTIAL 4-10DU/ AC.	140 AC.	448	5 %
MD-6	MEDIUM DENSITY RESIDENTIAL 4-10DU/ AC.	83 AC.	396	3 %
RES	*RESORTS AND RECREATION	14 AC.		LESS THEN 1 %
OP	*COMMERCIAL	5 AC.		LESS THEN 1 %
OS	*GREENBELT AND OPEN SPACE	1,128 AC.		43 %
GC	*GREENBELT AND OPEN SPACE (GOLF COURSE)	195 AC.		7 %
	TOTAL	2,615 AC.	*2,213 UNITS	100%

*(WITH NON-RESIDENTIAL USES PERMITTED)

* UNITS REDUCED PER COUNTY SECTION 10.864

LEGEND

- Forest Ranch Boundary
- Proposed Roads
- Designation Boundary
- Area Served by Septic Tank
- Sewage Treatment Spray Area
- Sewage Treatment & Storage

N W E S

1000 0 1000 2000 3000 Feet

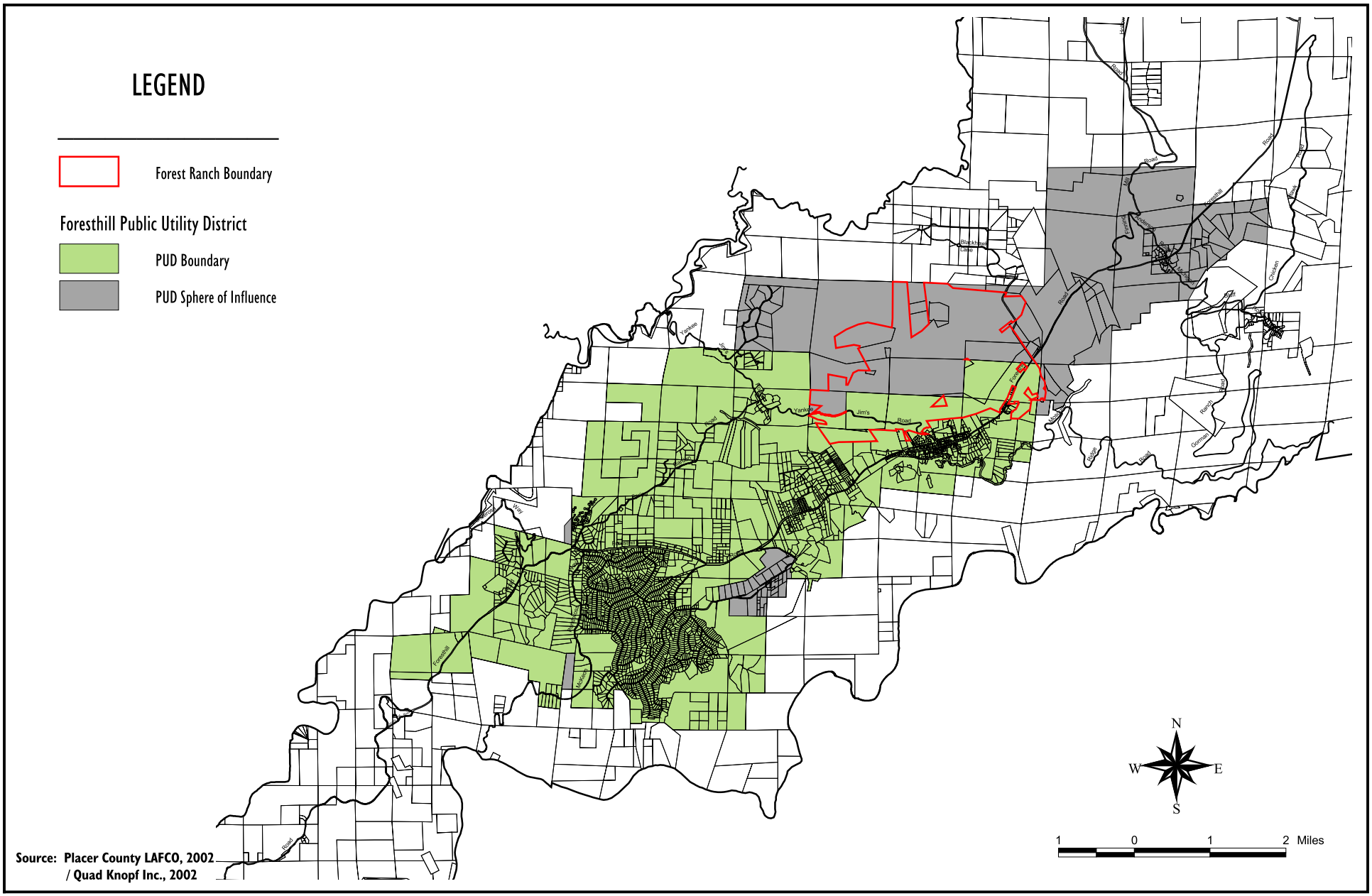
Source: GW Consulting Engineers, 2001 / Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

Sewage Treatment Exhibit

Figure 3.3-2



Quad Knopf

FOREST RANCH EIR

Foresthill Public Utility District

Figure 3.3-3

Buried Water Line, #61, Foresthill Pipeline. This water line begins at the Foresthill water treatment plant which is located on a small parcel located along Foresthill Road and runs westerly across the subject property to Devils Canyon Creek, where the pipe continues westerly off the property and ending near Monte Verde Estates and Foresthill Road. The water line consists of asbestos concrete pipe. The diameter varies. Beginning at the water treatment plant, the pipe is 21 inches in diameter and changes to 18 inches in diameter at 6,400 feet west of the treatment plant. This point is just west of the Garcia-Ryan Road. The pipe has a design depth of "B" = 5 to 10 feet as it crosses the subject property, except for a 200 foot section located 700 feet east of Yankee Jim's Road.

Buried Water Line, #62. This is an 8 inch iron pipe that is situated on the subject property. This water line draws water from the Foresthill water pipeline and delivers the water to Foresthill residents. A new water line was planned for installation in June of 1997. This water line would be a larger pipe and was planned to be installed adjacent to the existing water line.

Ditch, Class IV, #63. This is a historic ditch that in recent history has been used to divert water from Second Brushy Canyon Creek to the Adams Pit area. The ditch averages between 3 and 4 feet in diameter. The depth at the time of survey was measured at approximately 4 to 6 inches.

Storm Drainage

While the Foresthill area is prone to seasonal flooding, it is not located within a 100-year flood zone, as determined by Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs). There is no municipal storm drainage system within the community of Foresthill. Recent regulatory changes and existing General Plan policies will result in the project being subject to development of substantial storm drainage infrastructure. Further discussion is included in Section 3.4.2.

Placer County General Plan Policies

Public Facilities and Services

4.A.1. Where new development requires the construction of new public facilities, the new development shall fund its fair share of the construction. The County shall require dedication of land within newly developing areas for public facilities, where necessary.

4.A.2. The County shall ensure through the development review process that adequate public facilities and services are available to serve new development. The County shall not approve new development where existing facilities are inadequate unless the following conditions are met:

a. The applicant can demonstrate that all necessary public facilities will be installed or adequately financed (through fees or other means); and
b. The facilities improvements are consistent with applicable facility plans approved by the County or with agency plans where the County is a participant.

4.A.4. The County shall require proposed new development in identified underground conversion districts and along scenic corridors to underground utility lines on and adjacent to the site of proposed development or, when this is infeasible, to contribute funding for future undergrounding.

4.A.5. The County shall ensure that library facilities are provided to current and future residents in the unincorporated area. The County shall also require new development to fund its fair share of library facilities.

4.B.1. The County shall require that new development pay its fair share of the cost of all existing facilities it uses based on the demand for these facilities attributable to the new development; exceptions may be made when new development generates significant public benefits (e.g., low income housing, needed health facilities) and when alternative sources of funding can be identified to offset foregone revenues.

4.B.2. The County shall require that new development pay the cost of upgrading existing public facilities or construction of new facilities that are needed to serve the new development; exceptions may be made when new development generates significant public benefits (e.g., low income housing, needed health facilities) and when alternative sources of funding can be identified to offset foregone revenues.

4.B.3. The County shall require, to the extent legally possible, that new development pay the cost of providing public services that are needed to serve the new development; exceptions may be made when new development generates significant public benefits (e.g., low income housing, needed health facilities) and when alternative sources of funding can be identified to offset foregone revenues. This includes working with the cities to require new development within city limits to mitigate impacts on countywide facilities and services.

4.B.6. The County shall require the preparation of a fiscal impact analysis for all major land development projects. The analysis will examine the fiscal impacts on the County and other service providers which result from large-scale development. A major project is a residential project with 100 or more dwelling units or a commercial, professional office or industrial development on 10 or more acres of land.

4.C.1. The County shall require proponents of new development to demonstrate the availability of a long-term, reliable water supply. The County shall require written certification from the service provider that either existing services are available or needed improvements will be made prior to occupancy. Where the County will approve groundwater as the domestic water source, test wells, appropriate testing, and/or report(s) from qualified professionals will be required substantiating the long-term availability of suitable groundwater.

4.C.2. The County shall approve new development based on the following guidelines for water supply:

a. Urban and suburban development should rely on public water systems using surface supply.
b. Rural communities should rely on public water systems. In cases where parcels are larger than those defined as suburban and no public water system exists or can be extended to the property, individual wells may be permitted.
c. Agricultural areas should rely on public water systems where available, otherwise individual water wells are acceptable.

4.C.4. The County shall require that water supplies serving new development meet state water quality standards.

4.C.6. The County shall promote efficient water use and reduced water demand by:

a. Requiring water-conserving design and equipment in new construction;
b. Encouraging water-conserving landscaping and other conservation measures;
c. Encouraging retrofitting existing development with water-conserving devices; and
d. Encouraging water-conserving agricultural irrigation practices.

4.C.7. The County shall promote the use of reclaimed wastewater to offset the demand for new water supplies.

4.C.12. The County shall limit the annual rate of growth to 3 percent in areas where domestic water is supplied by individual or community wells. Where surface water supplies provide domestic water, the amount of growth shall be limited to what can be served by available surface water supplies assuming a 4-year drought period and usage of one acre foot of water per year per household.

4.D.7. The County shall permit on-site sewage treatment and disposal on parcels where all current regulations can be met and where parcels have the area, soils, and other characteristics that permit such disposal facilities without threatening surface or groundwater quality or posing any other health hazards.

4.D.8. The County shall require that the on-site treatment, development, operation, and maintenance of disposal systems complies with the requirements and standards of the County Division of Environmental Health.

4.D.9. The County shall require septic tank maintenance by a public entity as a condition of tentative map approval for major subdivisions in which septic tanks are to be used.

4.D.10. The County shall continue use of current technically-based criteria in review and approval of septic tank/leachfield systems for rural development.

4.E.1. The County shall encourage the use of natural stormwater drainage systems to preserve and enhance natural features.

4.E.2. The County shall support efforts to acquire land or obtain easements for drainage and other public uses of floodplains where it is desirable to maintain drainage channels in a natural state.

4.E.4. The County shall ensure that new storm drainage systems are designed in conformance with the Placer County Flood Control and Water Conservation District's Stormwater Management Manual and the County Land Development Manual.

4.E.7. The County shall prohibit the use of underground storm drain systems in rural and agricultural areas, unless no other feasible alternatives are available for conveyance of stormwater from new development or when necessary to mitigate flood hazards.

4.E.8. The County shall consider recreational opportunities and aesthetics in the design of stormwater ponds and conveyance facilities.

4.E.9. The County shall encourage good soil conservation practices in agricultural and urban areas and carefully examine the impact of proposed urban developments with regard to drainage courses.

4.E.11. The County shall require new development to adequately mitigate increases in stormwater peak flows and/or volume. Mitigation measures should take into consideration impacts on adjoining lands in the unincorporated area and on properties in jurisdictions within and immediately adjacent to Placer County.

4.E.12. The County shall encourage project designs that minimize drainage concentrations and impervious coverage and maintain, to the extent feasible, natural site drainage conditions.

4.E.13. The County shall require that new development conforms with the applicable programs, policies, recommendations, and plans of the Placer County Flood Control and Water Conservation District.

4.E.14. The County shall require projects that have significant impacts on the quantity and quality of surface water runoff to allocate land as necessary for the purpose of detaining post-project flows and/or for the incorporation of mitigation measures for water quality impacts related to urban runoff.

4.G.1. The County shall require waste collection in all new urban and suburban development.

4.H.1. Within the County's overall budgetary constraints, the County shall strive to maintain the following staffing ratios (expressed as the ratio of officers to population):

a. 1:1,000 for unincorporated areas
b. 1:7 for jail population
c. 1:16,000 total county population for court and civil officers

4.H.2. The County Sheriff shall strive to maintain the following average response times for emergency calls for service:

a. 6 minutes in urban areas
b. 8 minutes in suburban areas
c. 15 minutes in rural areas
d. 20 minutes in remote rural areas

4.H.3. Within the County's overall budgetary constraints, the County shall provide sheriff facilities (including substation space, patrol, and other vehicles, necessary equipment, and support personnel) sufficient to maintain the above service standards.

4.H.4. The County shall require new development to develop or fund sheriff facilities that, at a minimum, maintain the above standards.

4.H.5. The County shall consider public safety issues in all aspects of commercial and residential project design, including crime prevention through environmental design.

4.I.1. The County shall encourage local fire protection agencies in Placer County to maintain the following minimum fire protection standards (expressed as Insurance Service Organization (ISO) ratings):

a. ISO 4 in urban areas
b. ISO 6 in suburban areas
c. ISO 8 in rural areas

4.I.2. The County shall encourage local fire protection agencies in the county to maintain the following standards (expressed as average response times to emergency calls):

a. 4 minutes in urban areas
b. 6 minutes in suburban areas
c. 10 minutes in rural areas

4.I.3. The County shall require new development to develop or fund fire protection facilities, personnel, and operations and maintenance that, at a minimum, maintains the above service level standards.

4.I.9. The County shall ensure that all proposed developments are reviewed for compliance with fire safety standards by responsible local fire agencies per the Uniform Fire Code and other County and local ordinances.

4.J.5. The County should plan and approve residential uses in those areas that are most accessible to school sites in order to enhance neighborhoods, minimize transportation requirements and costs, and minimize safety problems.

4.J.6. The County should include schools among those public facilities and services that are considered an essential part of the infrastructure that should be in place as development occurs.

4.J.10. The provision of adequate school facilities is a community priority. The County and school districts will work closely to secure adequate funding for new school facilities and, where legally feasible, the County shall provide a mechanism which, along with state and local sources, requires development projects to satisfy an individual school district's financing program based upon their impaction.

4.J.11. The County and residential developers should coordinate with the school districts to ensure that needed school facilities are available for use in a timely manner. The County, to the extent possible, shall require that new school facilities are constructed and operating prior to the occupation of the residences which the schools are intended to serve.

4.J.13. Before a residential development, which includes a proposed general plan amendment, rezoning or other legislative review can be approved by the Planning Commission or Board of Supervisors, it shall be demonstrated to the satisfaction of the hearing body that adequate school facilities shall be provided when the need is generated by the proposed development.

Recreational and Cultural Resources

5.A.1. The County shall strive to achieve and maintain a standard of 5 acres of improved parkland and 5 acres of passive recreation area or open space per 1,000 population.

5.A.2. The County shall strive to achieve the following park facility standards:

a. 1 tot lot per 1,000 residents
b. 1 playground per 3,000 residents
c. 1 tennis court per 6,000 residents
d. 1 basketball court per 6,000 residents
e. 1 hardball diamond per 3,000 residents
f. 1 softball/little league diamond per 3,000 residents
g. 1 mile of recreation trail per 1,000 residents
h. 1 youth soccer field per 2,000 residents
i. 1 adult field per 2,000 residents
j. 1 golf course per 50,000 residents

5.A.3. The County shall require new development to provide a minimum of 5 acres of improved parkland and 5 acres of passive recreation area or open space for every 1,000 new residents of the area covered by the development. The park classification system should in Table 5-1 [of the General Plan] should be used as a guide to the type of the facilities to be developed in achieving these standards.

5.A.4. The County shall consider the use of the following open space areas as passive parks to be applied to the requirement for 5 acres of passive park area for every 1,000 residents.

a. Floodways
b. Protected riparian corridors and stream environment zones
c. Protected wildlife corridors
d. Greenways with the potential for trail development
e. Open water (e.g., ponds, lakes, and reservoirs)
f. Protected woodland areas
g. Protected sensitive habitat areas providing that interpretive displays are provided (e.g., wetlands and habitat for rare, threatened or endangered species.)

Buffer areas are not considered as passive park areas if such areas are delineated by setbacks within private property. Where such areas are delineated by public easements or are held as common areas with homeowner/property owner access or public access, they will be considered as passive park areas provided that there are opportunities for passive recreational use.

5.A.5. The County shall require the dedication of land and/or payment of fees, in accordance with state law (Quimby Act) to ensure funding for the acquisition and development of public recreation facilities. The fees are to be set and adjusted as necessary to provide for a level of funding that meets the actual cost to provide for all of the public parkland and park development needs generated by new development.

5.A.16. The County should not become involved in the operation of organized, activity-oriented recreation programs, especially where a local park or recreation district has been established.

5.A.21. The County shall encourage the development of public and private campgrounds and recreational vehicle parks where environmentally appropriate. The intensity of such development should not exceed the environmental carrying capacity of the site and its surroundings.

5.A.23. The County shall require that park and recreation facilities required in conjunction with new development be developed in a timely manner so that such facilities are available concurrently with new development.

5.B.1. The County shall encourage development of private recreation facilities to reduce demands on public agencies.

5.C.4. The County shall require the proponents of new development to dedicate rights-of-way and/or the actual construction of segments of the countywide trail system pursuant to trails plans contained in the County's various community plans.

Foresthill General Plan Goals and Policies

Parks and Recreation

Goal 2: Ensure adequate recreation facilities to meet the needs of present and future residents.

1. Provide for adequate riding and hiking trails.

4. Continue to require Park Dedication fees to ensure funding for future park needs.

Public Service

Goal: Assure service availability is consistent with the adopted land use plan and projected demand.

1. To maintain the rural environment, the long term use of individual sewage disposal systems should be encouraged except where physical and environmental conditions would prohibit their use.

2. Encourage cluster developments to minimize environmental degradation.

3. Require that adequate services are available for proposed developments prior to granting approval.

4. Encourage mitigation measures for new developments to reduce the impacts on local services (i.e. schools, parks, etc.).

Safety

Goal 1: Protect the citizens and visitors of the Foresthill area from loss of life while protecting property and watershed resources from unwanted fires through pre-planning, education, fire defense improvements, and fire suppression.

1. Ensure that all proposed developments are reviewed for fire safety standards by local fire agencies responsible for its protection, including providing adequate water supplies and ingress and egress.

Foresthill Divide Community Plan Goals and Policies

Public Facilities

3.D.1-1 New development shall fund its fair share of the construction where such new development requires the construction of new public facilities. Land within newly developing areas shall be dedicated for public facilities, where necessary.

3.D.1-2 The County shall ensure through the development review process that adequate public facilities and services are available to serve new development. New

development shall not be approved where existing facilities are inadequate unless the following conditions are met:

a. The applicant can demonstrate that all necessary public facilities will be installed or adequately financed (through fees or other means paid by the developer); and
b. The facilities improvements are consistent with applicable facility plans approved by the County or any other applicable agency.

Goal 3.D.2: Ensure that adopted facility and service standards are achieved and maintained through the use of equitable funding methods. Development fees generated on the Divide shall be used to provide for public facilities required by new development.

3.D.2-1 New development shall pay its fair share of the cost of all existing facilities it uses based on the demand for these facilities attributable to the new development; exceptions may be made when new development generates significant public benefits (e.g., low income housing, needed health facilities) and when alternative sources of funding other than the pre-existing tax base can be identified to offset foregone revenues.

3.D.2-2 New development shall pay the cost of upgrading existing public facilities or construction of new facilities that are needed to serve the new development; exceptions may be made when new development generates significant public benefits (e.g., low income housing, needed health facilities) and when alternative sources of funding other than the pre-existing tax base can be identified to offset foregone revenues.

Goal 3.D.3: Ensure adequate wastewater collection and treatment and the safe disposal of liquid and solid waste.

3.D.3-1 The County shall permit on-site sewage treatment and disposal on parcels where all current regulations can be met and where parcels have the area, soils, and other characteristics that permit such disposal facilities without threatening surface or groundwater quality or posing any other health hazards.

3.D.3-3 The County shall continue to use current technically-based criteria in their review and approval of septic tank/leachfield systems and other systems such as graywater and composting toilets for rural development.

3.D.3-4 The County shall promote technologies that permit water reuse for irrigation, when public health is not endangered.

Goal 3.D.4: Ensure the availability of an adequate and safe water supply (potable and “fire flow”) and the maintenance of high quality water in water bodies and aquifers used as sources of domestic supply.

3.D.4-1 All new development shall be required to demonstrate the availability of a long-term, reliable water supply. Written certification from the service provider shall be required that either existing services are available or needed improvements will be made prior to occupancy. Where the County will approve groundwater as the domestic water source, test wells, appropriate testing, and/or report(s) from qualified professionals will be required substantiating the long-term availability of suitable groundwater.

3.D.4-2 The County shall only approve new development based on the following guidelines for water supply:

a. Higher density development should rely on public water systems.
b. Developments containing parcel sizes of one acre or less shall be required to connect to a treated water supply. In cases where parcels are larger than one acre and no public water system exists or can be extended to the property, individual wells may be permitted.

3.D.4-6 The County shall promote efficient water use and reduced water demand by:

a. Requiring water-conserving design and equipment in new construction;
b. Encouraging water-conserving landscaping and other conservation measures;
c. Encouraging retrofitting existing development with water-conserving devices; and
d. Encouraging water-conserving agricultural irrigation practices.

3.D.6-1 Before approval of a residential development proposal, it shall be demonstrated to the satisfaction of the hearing body that adequate school facilities shall be provided when the need is generated by the proposed development.

3.D.10-1 The County shall encourage all residential developers to consult with the school district early in the planning process.

3.D.10-2 Residential rezone, general plan and community plan amendments or other land-use entitlement requests shall not be approved unless accompanied by a finding that school facilities to accommodate projected students consistent with service level standards will be available in a timely manner to serve the project or that the project includes phasing conditions to ensure coordination of residential and school construction consistent with policy.

3.D.11-1 The community, County and the school districts will work closely to explore all possibilities for securing adequate funding of new school facilities. This will include the development of local funding mechanisms as well as the utilization of state funds when they are available. Local resources may include the dedication of school sites (controlled land costs), developer fees, development agreements, Mello-Roos, and CFDs, assessment districts, redevelopment funds, general obligation bond proceeds and special taxes, etc.

3.D.11-2 When the school district has declared impaction and has developed a Facility and Financing Plan, the County will not approve a project until a will serve letter has been obtained by the developer from the school district.

3.D.13-1 The County shall encourage the Foresthill Fire District to maintain the current minimum fire protection standard (expressed as Insurance Service Organization (ISO) ratings) of ISO 6 in areas serviced by hydrants, ISO 8 in areas with no hydrants.

3.D.13-2 The County shall en courage the Foresthill Fire District to maintain the following standards (expressed as average response times to emergency calls):

a. Property: the arrival of the first fire apparatus at the point of need within 3 minutes "run time" 70% of the time and within 6 minutes 100% of the time.

3.D.13-3 The County shall encourage the Foresthill Fire District to achieve a response time equal to its run time.

3.D.13-4 The County shall require new development to develop or fund fire protection and medical aid facilities, personnel, and operations and maintenance that, at a minimum, maintain the above service level standards.

3.D.13-9 The County shall ensure that all proposed developments are reviewed for compliance with fire safety standards by responsible local fire agencies per the Uniform Fire Code and other County and local ordinances.

3.D.13-12 The County shall require that discretionary permits for new development in fire hazard areas be conditioned to include requirements for a fire safe community, defensible s pace fire-resistant vegetation, cleared fire breaks and fuel breaks, or a long-term comprehensive fuel management program. Fire hazard reduction measures shall be incorporated into the design of development projects in fire hazard areas of Foresthill.

3.D.13-13 The County shall require that new development meet State, County, and local fire district standards for fire protection.

3.D.14-1 Within the County's overall budgetary constraints, the County shall strive to maintain a staffing ratio (expressed as the ratio of officers to population) of 1:1,000 for the Foresthill Divide.

3.D.14-2 The County Sheriff shall strive to maintain the following average response times for emergency calls for service in Foresthill:

a. 15 minutes in rural areas
b. 20 minutes in remote rural areas

3.D.14-4 Within the County's overall budgetary constraints, the County shall provide Sheriff facilities (including substation space, patrol and other vehicles, necessary equipment, and support personnel) sufficient to maintain the existing service standards.

3.D.14-5 The County shall require new development to develop or fund Sheriff facilities that, at a minimum, maintain the existing standards.

3.D.14-6 The County shall consider public safety issues in all aspects of commercial and residential project design, including crime prevention through environmental design.

3.D.14-7 New development shall provide for its fair share of medical response services.

3.D.15-1 New storm drainage systems shall be designed to be in conformance with the Placer County Flood Control and Water Conservation District's Stormwater Management Manual and the County Land Development Manual.

3.D.15-2 Project designs that minimize drainage concentrations and impervious coverage and maintain, to the extent feasible, natural site drainage conditions shall be encouraged.

3.D.15-3 Projects that result in significant impacts on the quantity and quality of surface water runoff shall be required to allocate land as necessary for the purpose of detaining post-project flows and/or for the incorporation of mitigation measures for water quality impacts related to urban runoff.

3.D.18-4 Developers shall install the latest telephone/communications technology in new projects.

3.D.18-9 New developments shall be required to provide cable television lines to development parcels.

3.D.22-1 The County shall require waste collection in all new urban and suburban development.

3.D.22-4 The County shall require that all new development comply with applicable provisions of the Placer County Integrated Waste Management Plan.

Parks and Recreation

3.E.1-1 The County shall strive to achieve and maintain a standard of 5 acres of improved parkland and 5 acres of passive recreation area or open space per 1,000 population.

3.E.1-2 In accordance with the park development standards, the County shall strive to achieve the following park facility standards:

a. 1 tennis court per 2,000 residents
b. 1 swimming pool in the Plan area
c. 1 community center in the Plan area
d. 1 softball field per 5,000 residents
e. 1 basketball court per 5,000 residents
f. 1 neighborhood park per elementary school neighborhood
g. 1 community park per community
h. 1 volleyball court per 5,000 residents

3.E.1-3 The County shall require the dedication of land and/or payment of fees, in accordance with state law (Quimby Act), to ensure funding for the acquisition and development of public recreation facilities. The fees are to be set and adjusted as necessary to provide for a level of funding that meets the actual cost to provide for all of the public parkland and park development needs generated by new development.

3.E.1-4 The County shall ensure that park design is appropriate to the recreational needs and, where feasible, provides access capabilities to all residents, employees, and visitors of Placer County.

3.E.1-5 The County shall require the inclusion of new subdivision lands in a type of financing district (such as a County Service Area or Landscape and Lighting District) to generate sufficient funds to operate and maintain new public park facilities provided in the area.

3.E.2-1 New residential development shall provide park facilities in accordance with Placer County standards. The creation of community parks (15+ ac.) is more desirable than several small, isolated facilities.

3.E.2-2 The Foresthill Divide has an abundance of public passive open space and outdoor recreational opportunities and facilities, i.e., Tahoe National Forest and Auburn State Recreation Area. Development dedication fees would be more appropriately used for development of new parks, facilities or easements for new trails. By way of implementation of the Park Dedication Ordinance (Quimby Act), "in-lieu" fees or construction of desired recreation facilities shall be given priority over acquisition/acceptance of land.

3.E.3-1. Encourage the development of private campgrounds and recreational vehicle parks where appropriate.

3.E.3-2. Encourage local private enterprise to develop and implement other private recreational facilities and/or programs.

3.E.4-4. Require proponents of new development to dedicate right-of-way and/or construct segments of trail linking the development to existing and planned trails. Trails could serve as required passive open s pace (see Placer County Trail Development Policy).

3.E.4-5. Trails shall be separated from the traveled roadway whenever possible by curbs, barriers, landscaping and spatial distance. Safety is a high priority, also with emphasis on aesthetics.

Appendix B of the proposed Foresthill Divide Community Plan includes the following standards for services and infrastructure to be provided to the project site:

Development Standards, "Forest Ranch" Specific Plan Area, Services and Infrastructure

Residential development within the specific plan area shall be served by the following entities (or such other service providers as are deemed to be appropriate and are specifically approved by the County):

- The Foresthill Public Utility District (domestic water);
- The Foresthill Fire Protection District (structural fire protection/emergency medical response services);
- The Placer County Sheriff's Department (police protection);
- The Foresthill Safety Club (ambulance/lifesaving services);
- The California Department of Forestry & Fire Protection [CDF] (wildland fire protection).

Roads shall be maintained by Placer County, by a Community Services District, or by an appropriate private entity (Homeowners' Association, etc.) as approved by the County. Trails shall be maintained by a private entity approved by the County (although this provision would not preclude an arrangement whereby the County could maintain trails in the project). Sewage disposal shall be provided according to a plan approved by the Placer County Environmental Health Services [EHS].

A Services and Infrastructure Plan that addresses the phasing of improvements, how connections are made among the various phases and realistic implementation measures shall be submitted to, reviewed and approved by Placer County prior to recordation of the first final subdivision map on the project or the issuance of any building permits in conjunction with the project.

Impacts and Mitigation Measures

Impact Evaluation Criteria

According to Appendix G of the State CEQA Guidelines, the proposed project would normally have a significant environmental effect on public utilities and services if it would:

- 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 service ratios, response time or other performance objectives for any of the public services (law enforcement, fire protection/emergency medical services, solid waste collection and disposal, parks and recreation, schools, road maintenance/snow removal, power/fuels, wastewater treatment and disposal, water supply and distribution, and storm drainage).

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

- 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.

- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

- Have insufficient water supplies available to serve the project from existing entitlements and resources, or new or expanded entitlements would be needed.

- Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

- Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs.

- Fail to comply with federal, state, and local statutes and regulations related to solid waste.

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Development which is inconsistent with relevant Placer County General Plan and Foresthill General Plan policies should be considered potentially significant. Because the Foresthill Divide Community Plan is not yet adopted, but has been developed by the Foresthill Community Plan Team and is currently under review for possible adoption, development which is inconsistent with relevant proposed policies may be considered potentially significant, although it is recognized that policies may not be adopted in their current form.

Impact 3.3.2-1 Provision of adequate public protection to serve the proposed project.

Development of the project site will ultimately result in development of 2,213 dwelling units, approximately 19,000 square feet of office space, a recreational vehicle park, golf course and

related uses, and an equestrian center. This development would convert the project site from existing undeveloped forested land to rural residential, residential and recreational uses over an estimated 10-year period. The proposed development will place an increased demand upon law enforcement services in the community of Foresthill. The project site will be served from the existing Sheriff's substation in Foresthill.

Standards set forth in the Placer County General Plan call for one sworn officer for every 1,000 population, one jail officer for every 7 inmates at the jail (one officer per 2,512 residents), and one non-sworn officer for every 16,000 population. These standards are refined in the impact report formulas developed by the Placer County Sheriff's Department. These standards call for one deputy per 1,000 residents in single family developments, two deputies per 1,000 residents for multiple family residential uses, one dispatcher per 5,500 residents, one correctional officer per 2,512 residents, one clerical staff per 15,000 for records, and one other clerical staff per 26,000 residents. In their letter in response to the Notice of Preparation (see Appendix A of this EIR), the Sheriff's Department has reported the budget impacts of the proposed project. However, the Sheriff's Department did not take into consideration the number of age-restricted units and assumed a household size of 2.5 residents for all 2,213 dwelling units. The analysis in this EIR assumes that the age-restricted units have a household size of 1.7 and the non-age restricted units have a household size of 2.66.

The proposed Forest Ranch project, at full buildout, would accommodate 1,997 single family units and 216 townhomes, yielding an estimated 3,680 persons in single family residential developments and 575 persons in multiple family residential developments.

Based upon the General Plan service standard of one sworn officer per 1,000 population, 4 officers will be needed at full buildout. Other staff required will include .77 dispatcher position, 0.28 record clerk position, 1.7 correctional officers, and 0.16 clerical position.

It can be argued that the age-restricted nature of the majority of the dwelling units will generate lower demand for law enforcement services. However, the County's General Plan standards and County fees make no allowance for specific characteristics (such as age) of the population served.

The County currently assesses a public protection capital facilities fee of $1,155.17 per dwelling unit (for Low and Medium Density Residential development), which would generate an estimated $2,556,391 at buildout (in 2001 dollars). There is also an assessment of 0.2598/sq. ft. for offices, which would generate an estimated $4,936, and $0.1639/sq. ft. for retail commercial, but there is no estimate of retail commercial square footage. There is no assessment for recreational facilities. These fees can be used for capital expenditures (e.g., substation expansion, patrol vehicles), but not salaries and other operating costs for law enforcement. A portion of the total fee (41%) is allocated to jails and public protection, which includes detention facilities, juvenile, and adult/probation.

Development of the proposed Forest Ranch project would increase the demand for additional deputies, patrol vehicles, correctional personnel, dispatchers, non-sworn personnel, and clerical

staff to adequately serve the Foresthill community. Because these costs are covered by the County's general fund, this is considered a ***potentially significant impact.***

Mitigation Measure

Implementation of the following measure would reduce impacts on law enforcement to a *less than significant level:*

3.3.2-1. *Project developers shall be required to establish a special benefit assessment district or other funding mechanism to assure adequate funding for law enforcement and related services and operational costs, with funding responsibilities imposed on residential, office, commercial and recreational properties within the Forest Ranch project, including the costs for services required to satisfy General Plan standards now in existence or later amended. The funding mechanism shall be subject to the prior review and approval of Placer County, and shall be approved by the affected landowners prior to recordation of the first final subdivision map.*

Impact 3.3.2-2 Provision of adequate fire protection services and facilities and emergency medical response to serve the proposed project.

The Foresthill Fire Protection District will be the lead agency providing fire, medical and rescue services to the project site, which is entirely within District boundaries. The U.S. Forest Service provides mutual aid to the District for wildland and structural fires, medical aids and accidents. Placer County contracts with the California Department of Forestry and Fire Protection (CDF) to provide seasonal fire protection in outlying areas identified as State Responsibility Areas. According to the District's response to the Notice of Preparation (see Appendix A of this EIR), the District "…could require as much as a 70% increase in infrastructure, such as a larger/additional fire station(s), additional fire engines, and personnel."

The District currently assesses a fee of $0.48/sq. ft. on new development to support fire protection services. Since the square footage of new development within the project site is not known at this time, the amount of fees that would be generated cannot be estimated.

The impact of the proposed project on District facilities, equipment and personnel, and their ability to adequately serve the project and existing development, is significant. Collection of impact fees will partially address that impact, but the timing of receipt of fee revenues and the need to provide additional facilities, equipment and personnel may not coincide. Therefore, this impact remains ***potentially significant.***

Mitigation Measure

Implementation of the following measures will further reduce the impact on fire protection and emergency medical response to a *less than significant level:*

3.3.2-2a. *All structures larger than 2,500 square feet shall be sprinklered.*

3.3.2-2b. *A fire station shall be provided on the project site with a design and location to be approved by the Foresthill Fire Protection District. Equipment and paid staff shall be provided for the fire station in accordance with the requirements of the Foresthill Fire Protection District. The fire station shall be dedicated to the Foresthill Fire Protection District, and construction and equipping of the station shall be completed prior to issuance of the first certificate of occupancy for the project site.*

3.3.2-2c. *The project shall make a fair share contribution toward improvements to the existing Foresthill Fire Protection District Station #1 located in Foresthill. The fair share contribution shall be determined by the Foresthill Fire Protection District.*

3.3.2-2d. *These requirements, including provision for ongoing funding for fire station staffing, shall be included in a fully executed agreement between the Foresthill Fire Protection District and the project applicant. The agreement shall be executed prior to approval of the first tentative subdivision map, conditional use permit or minor use permit for the project site.*

Impact 3.3.2-3 Provision of adequate solid waste collection and disposal services for the proposed project.

At full buildout of the proposed Forest Ranch project, a total of 3,084 tons per year of residential and commercial Municipal Solid Waste (MSW) will be generated (based upon 7.1 lbs./day per unit with a total of 2,213 units, plus 100 recreational vehicle park spaces, and 19,000 square feet of commercial based on 2.5 lbs/day/per 100 sq. ft. of commercial). Waste generation rates have not been calculated for the other uses (golf course and related facilities, and equestrian center) since specific detailed data needed for these estimates is not available at this stage of the development process.. In addition to the waste generated described above, there will also be construction related debris. The amount of construction debris has not been estimated at this time; therefore, there is a potential for additional impacts to the existing solid waste facilities as a result of this increase. It is estimated that 79 percent (2,436 tons) of the estimated waste generation from the project will go to the Western Regional Landfill. The landfill is currently estimated to remain open until 2036 with a cumulative capacity of 36,350,000 cubic yards. Foresthill residents have the option to subscribe to Auburn Placer Disposal Service for curbside pickup and recycling or pay a mandatory parcel fee for the operation of the Foresthill Transfer Station that allows full access to that facility. Residential curbside greenwaste collection and household hazardous waste collection are not available at this time.

The County is required under State law to prepare and adopt a Source Reduction and Recycling Element (SRRE), which includes the County's plan to divert solid waste from the landfill. To meet this requirement, the County actively pursues composting, business waste reduction, school recycling, curbside collection, public education, and outreach programs to reduce the amount of solid waste generated. Community access to recycling facilities will increase the life of the landfill and reduce the amount of solid waste being separated at the Materials Recovery Facility.

The project has the potential to impact the Foresthill Transfer Station in the event that residents elect not to subscribe to garbage collection service and rely on the transfer station. This has the

potential to result in an additional 8.5 tons per day to the transfer station that currently accepts approximately 36 tons per day. The 8.5 tons per day is nearly 24% of the amount currently accepted at the facility. Requiring garbage collection service will not reduce impacts on the transfer station to a less than significant level since it is anticipated that residents will still utilize the transfer station on an occasional basis. Improvements to the transfer station would alleviate this impact. There are also potential impacts to the Western Placer Waste Management Authority Materials Recovery Facility and the Western Regional Sanitary Landfill.

Based on the above, the impact of development of the Forest Ranch project on solid waste collection and disposal is considered ***potentially significant.***

Mitigation Measure

Implementation of the following measures will reduce impacts on solid waste facilities to a *less than significant level:*

3.3.2-3a. *The County shall require that all new residents of the Forest Ranch project subscribe to garbage collection service.*

3.3.2-3b. *Contractors shall be required to provide on-site systems for reducing construction debris that divert at least 50% of debris from the MRF and Landfill.*

3.3.2-3c. *Prior to construction, a fair share fee shall be paid in order to assist in funding improvements to the transfer station that may consist of one or more of the following:*

- *Widening the access road*
- *Expanding the elevated asphalt pad*
- *Providing additional paved area to increase recycling capabilities*
- *Adding an additional transport trailer.*

Impact 3.3.2-4 Provision of adequate parks and recreation facilities and programs to serve the proposed project.

The proposed project includes 1,128 acres of open space (43% of the project site, including area for the proposed wastewater treatment facility); an 18-hole golf course and related recreational uses (e.g., restaurants, meeting rooms, swimming pool, driving range on 195 acres, or 7% of the project site); and an equestrian center. The proposed project also includes 17 miles of "community trails" and 0.8 mile of "wilderness trails." The equestrian center would be for the use of project residents; the golf course would be open to the public. The availability of other facilities for public use (i.e., swimming pool, meeting rooms) is not addressed.

The Placer County General Plan establishes a standard of 5 acres of improved parkland and 5 acres of passive recreation area or open space per 1,000 population (Policy 5.A.1). The General Plan requires new development to provide a minimum of 5 acres of improved parkland and 5 acres of passive recreation area or open space for every 1,000 new residents of the area covered

by the development (Policy 5.A.3). The park classification system shown in Table 5-1 of the General Plan should be used as a guide to the type of the facilities to be developed in achieving these standards.

While this EIR estimates that a total of 4,255 persons would reside on the project site at buildout (see Impact 3.3.1), based on an average household size of 2.66 persons for the non-age restricted units, and 1.7 persons per household for the age restricted units as reported above, 22 acres of active recreational facilities must be provided. In addition, payment of park impact fees of $1,410 per unit will be required (because the project is considered a "planned development"), which will generate a total of $3,120,330 at buildout (in 2002 dollars). The 1,128 acres of open space included as part of the proposed project, even excluding areas set aside for facilities such as the wastewater treatment plant, would more than satisfy the requirement for passive recreation area. However, the proposed project does not meet the requirement for 22 acres of improved parkland. This lack of improved, active parkland in the project is a ***potentially significant impact.***

The Placer County General Plan also encourages the development of private recreation facilities to reduce demands on public agencies (Policy 5.B.1). The proposed project provides private recreation facilities.

The General Plan also supports development of a countywide trail system. The proposed project includes trails. The General Plan requires the proponents of new development to dedicate rights-of-way and/or the actual construction of segments of the countywide trail system pursuant to trails plans contained in the County's various community plans (Policy 5.C.4). The 1981 Foresthill General Plan does not include a trails plan.

As reported in the Setting section, all organized recreational programs in the community are operated and managed by volunteers, and existing community park facilities are heavily used. There is no park district or special district which manages parks and operates recreational programs in Foresthill, and there is no senior center in the community of Foresthill. It is estimated that a total of 4,255 persons would reside on the project site at buildout, of whom approximately 2,890 would be age 55 and older. This population would have different recreational needs than the younger population. While many of these needs for recreational programs could be met within the project site, the project does not propose the operation of recreational programs for senior (or for youth and younger adults). Impacts due to a lack of adequate recreational programs are ***potentially significant.***

Mitigation Measures

Implementation of the following measures will reduce impacts on parks and recreational facilities and programs to a *less than significant level:*

3.3.2-4a. *The developer shall be required to develop and maintain 22 acres of private active recreation facilities and to either pay park dedication fees or provide and maintain 22 acres of developed public community recreation. In lieu meeting this standard,*

the project could explore other options as described in the Planned Development portion of the Zoning Ordinance (Section 17.54.100(D)3).

3.3.2-4b. *Trail classifications shall be shown on all project plans in accordance with the Placer County Trails Master Plan.*

3.3.2-4c. *A County Service Area, Zone of Benefit under CSA #28 (the County-wide County Service Area), community services district, expansion of powers of the Foresthill P.U.D., master homeowners association, parks and recreation district, assessment district, or other entity for sustainable park maintenance shall be formed or completed for the project site prior to recordation of the first final subdivision map. A park maintenance tax or assessment with a provision for increases indexed to the Consumer Price Index shall be approved by the landowners (voters) of the project site, to be developed prior to recordation of the first final subdivision map.*

Impact 3.3.2-5 Provision of adequate school facilities to serve the proposed project.

As reported above, of the total of 2,213 dwelling units, 1,700 are proposed to be age-restricted. It is therefore assumed that no school-age children will occupy those units on a permanent basis. It is estimated that the remaining 513 units will generate 257 K-8 students and 121 high school students, based on the school districts' student generation rates of 0.5 and 0.2362, respectively.

As described in the Setting section, both districts report that enrollment exceeds capacity. A 100-acre school site has been jointly purchased by the districts in Foresthill for a new high school and elementary school. A bond issue was passed to build the new high school, which is scheduled to be occupied by 2004.

In addition to the local bond measure, revenue will be generated through school impact fees and State bond measures to develop schools. School impact fees are collected upon issuance of building permits, and are based on the square footage of new buildings. There is currently no exception for age-restricted dwelling units. The fee rate applicable at the time the fee is assessed will probably be higher than current fees, which are $1.28/square foot for new residential development and $0.20/squre foot for new commercial development for the Foresthill Union School District, and $0.86/square foot for new residential development and $0.14/square foot for new commercial development for the Placer High School District. The districts do not exempt age-restricted housing from the impact fees; however, they may negotiate fees based on the circumstances of a specific development project.

Since Proposition 1A was passed by the voters and SB 50 was passed by the State Legislature in 1996, school fees generated by new development have been deemed legally sufficient mitigation of any impacts based on generation of students on school facilities, and the impact is therefore ***less than significant***, provided school impact fees are collected pursuant to State law. Additional actions can be taken by school districts to increase the amount of fees collected if certain criteria are met, but these actions are outside the control of Placer County.

<u>Mitigation Measure</u>

No additional mitigation measures are required or available.

Impact 3.3.2-6 Provision of adequate road maintenance and snow removal to serve the proposed project.

The proposed project will include several miles of internal roadways that will require maintenance and, on occasion, snow removal. Public roads are maintained and snow removal is provided by the Placer County Public Works Department. The project application does not indicate whether internal roadways are proposed to be public or private. Snow removal and maintenance of parking lots on the project site will be the responsibility of the property owner(s). If internal roadways are private, there will be ***no impact*** on County services. If internal roadways are public, the project may have an impact on County road maintenance and snow removal services. This impact is therefore considered ***potentially significant.***

Mitigation Measure

Implementation of the following measures will reduce impacts on road maintenance and snow removal to a *less than significant level:*

3.3.2-6. *The Specific Plan shall propose a method for provision of adequate road maintenance and snow removal to serve the project area. This shall include adequate funding for maintenance and snow removal. Prior to recordation of any map or acceptance by the County of any improvements within the project area, a County Service Area, Zone of Benefit under CSA #28 (the County-wide County Service Area), community services district, expansion of powers of the Foresthill P.U.D., assessment district, or other mechanism acceptable to the County to ensure road maintenance and snow removal shall be formed or completed.*

Impact 3.3.2-7 Provision of adequate public utilities to serve the proposed project.

Extensions of existing electrical facilities by PG&E will be necessary to provide electrical service to the proposed project. PG&E has the ability to provide electrical service for the proposed development. Costs of extending electrical service will be the responsibility of the project developer(s). Since PG&E has the ability to supply the necessary electrical service to the project site, this impact is considered ***less than significant.***

Energy supply is surpassed by energy demand during peak usage times in California. Increased energy efficiency and conservation may reduce the need for additional power plants or other energy facilities that could cause undesirable environmental costs, as well as reducing costs to future homeowners and businesses. Title 24 of the California Code of Regulations addresses required energy efficiency measures for construction. These construction practices can reduce costs to homeowners and businesses over the long term.

Propane service is provided by private suppliers and is available to the project site. Impacts related to propane service are ***less than significant.***

Mitigation Measure

No mitigation measures are required.

Impact 3.3.2-8 Provision of adequate wastewater disposal systems to serve the proposed project.

The project proposes to use individual septic systems and a wastewater treatment facility that is proposed to be constructed and operated to Placer County, State Water Resources Control Board, and Federal standards. A wastewater feasibility analysis was undertaken that provides a preliminary analysis of the feasibility of a wastewater collection, treatment and disposal system for the proposed Forest Ranch project (See Appendix B of this EIR). The study provides a conceptual analysis of a community wastewater collection, treatment and disposal system.

The study concludes that a traditional gravity type collection system is feasible with the requirement that at least two sewer lift stations be included in the system. It will be possible to use reclaimed wastewater for the purposes of golf course irrigation once sufficient development exists to provide enough wastewater to meet the demand. A subsurface drip irrigation system would be required to provide for a method of disposal during the winter months. The drip irrigation would require approximately 15-18 acres of total land area and a storage reservoir would be required to store water during peak wet weather events and to provide emergency storage.

It is anticipated that a community services district, or alternative public agency acceptable to the County, will be created to manage the wastewater treatment facilities. Figure 3.3-2 shows areas proposed for septic tanks, community sewage treatment and spray irrigation. As stated by the applicant, "The exact locations may change with future entitlement requests to reflect changes in treatment technology, regulations, topography, etc."

An area west of the golf course is shown for the wastewater treatment plant and storage. It is a relatively flat area, bordered to the north by proposed Medium Density Residential (4 du/acre), to the east and south by Low Density Residential (3 du/acre), and to the west by Open Space. The area proposed for treated effluent spray irrigation is the golf course. The Rural Residential-2.3 Acre, Rural Residential-5 Acre and Resort (recreational vehicle park and equestrian center) are proposed to be served by septic systems.

Some of the potential impacts associated with construction and operation of a wastewater treatment system are addressed in other sections of this EIR. Potential odor impacts and water quality impacts are addressed in Section 3.4.2. Potential land use conflicts are addressed in Section 3.1. Potential risk of upset is addressed in Section 3.8.

Lack of a responsible entity to manage and operate the proposed wastewater treatment facility would result in a ***significant impact***. Development of the project site at densities greater than one dwelling unit per 2.3 acres without construction of the wastewater treatment facility would be a ***potentially significant impact***. Development of an inadequate wastewater treatment facility

(in terms of size, treatment process, and/or discharge of treated effluent) would be a ***significant impact.***

Mitigation Measures

Implementation of the following measures will reduce impacts related to wastewater disposal to a *less than significant level:*

3.3.2-8a. *A community services district, expansion of powers of Foresthill P.U.D., or other public entity for sustainable wastewater treatment facility maintenance and operation shall be formed or completed prior to recordation of the first final subdivision map for a development project with a density higher than one dwelling units per 2.3 acres.*

3.3.2-8b. *The recreational vehicle park, multiple family dwellings, single family dwellings at a density greater than 1 unit per 2.3 acres, and restaurants shall be connected to the wastewater treatment facility as a condition of approval of a conditional use permit and/or tentative subdivision map (when applicable) and prior to issuance of a certificate of occupancy.*

3.3.2-8c. *The developer shall obtain Waste Discharge Requirements (WDRs) from the Regional Water Quality Control Board for the on-site wastewater treatment facility, which will assure that the size, treatment process, and discharge of treated effluent are adequate and in compliance with local, State and federal standards. If the size or other characteristics of the golf course are inadequate for spray irrigation of treated effluent, adequate area shall be provided on the site in accordance with WDRs.*

3.3.2-8d. *Construction of sewer lines, reclaimed water lines, reservoirs, and the wastewater treatment facility shall be in compliance with Mitigation Measures 3.4.2-1a-e and 3.4.1-1a.*

Impact 3.3.2-9 Provision of a safe and adequate water supply and fire flow to serve the proposed project.

Domestic water is proposed to be provided by the Foresthill P.U.D. As shown in Figure 3.3-3, only a portion of the project site is within the boundaries of the Foresthill P.U.D., and the remainder is within the District's Sphere of Influence. Irrigation of the golf course is proposed to be accomplished through spray irrigation of treated effluent from the wastewater treatment facility.

Foresthill P.U.D. has indicated that they have the necessary water supply to serve development in accordance with the Draft FDCP, but that expansion of their water treatment plant will be needed to serve that level of development (see Draft EIR for the Foresthill Divide Community Plan). The proposed project includes an additional 1,700 dwelling units, professional offices, and a recreational vehicle park that are not contemplated in the Draft FDCP or the 1981 Foresthill General Plan.

The Foresthill P.U.D. has prepared a water supply assessment in accordance with SB 610 (Sections 10910-10915 of the California Water Code) for the proposed project. The water supply assessment is required to be included in the environmental document prepared for a project (Appendix C).

The existing Foresthill P.U.D. total water supply consists of 2,707 acre feet per year of water from Sugar Pine Reservoir. The yield of 2,707 acre-feet is based on the District's adopted reliability standard that includes multiple drought years. The Districts existing demand is 1,154 acre feet.

According to the report prepared by the Foresthill P.U.D., buildout of the existing service area will result in a demand of total demand of 2,432 acre feet per year. This demand is within the District's available supply of 2,707 acre feet per year and would include 524 potential units on the Forest Ranch site within the existing boundaries of the Foresthill P.U.D. Under drought conditions within the District's present boundaries, there is a surplus of 275 acre feet of water per year. This is sufficient to supply approximately 745 units assuming water use similar to multifamily units, which is 330 gallons per day per unit. If single family units are proposed, the surplus of 275 acre feet per year could supply approximately 571 units at 430 gallons per day per unit. The Forest Ranch Development proposes 2,213 units as well as a golf course and associated facilities, a 100 unit RV park and an equestrian center. Water is available to serve the 524 of those units located within the present District boundaries. The water available to serve the areas outside the current District Boundaries (275 acre feet) is not sufficient to serve the remainder of the Forest Ranch project. It should be noted that there are other areas (in addition to Forest Ranch) that are located within the Sphere of Influence of the District. This means that there is likely to be less than the total surplus available to serve development on the Forest Ranch site. The District currently does not have any plans to develop or acquire additional supplies.

Development of the Forest Ranch residential units not currently accounted for in the water demand figures for the existing district boundaries (1,689 units) would require approximately 845 acre feet of water per year. That demand estimate does not take into account the other proposed uses such as the golf course. No other water sources have been identified. The surplus water supply for the District would only serve approximately 571 additional units outside existing District boundaries. This impact is ***potentially significant.***

Project site diagrams and application materials do not mention or include emergency water storage tank(s). Lack of an adequate emergency water supply is a ***potentially significant impact.***

Mitigation Measures

Implementation of the following measures will reduce impacts related to water supply and fire flow *to a less than significant level:*

3.3.2-9a. *The portion of the project site located outside Foresthill P.U.D. boundaries shall be annexed to the District prior to recordation of the first final subdivision map.*

3.3.2-9b. *A "will serve" letter shall be obtained from the Foresthill P.U.D. prior to recordation of the first final subdivision map or other County approval.*

3.3.2-9c. *An emergency water storage tank(s) shall be constructed onsite by project developers and maintained by Foresthill P.U.D. The location(s) and volume of water to be stored shall be determined by Foresthill P.U.D. and the Foresthill Fire Protection District.*

3.3.2-9d. *Fire hydrants shall be installed and fire flow shall be provided in accordance with the requirements of the Foresthill P.U.D. and the Foresthill Fire Protection District.*

3.3.2-9e. *Construction of water lines and the emergency water storage tank(s) shall be in compliance with Mitigation Measure 3.4.1-a-b.*

3.3.2-9f. *The number of units allowed on the project site shall be reduced to 533, the number of units anticipated on the site under the draft Foresthill Divide Community Plan.*

Impact 3.3.2-10 Provision of an adequate stormwater drainage system to serve the proposed project.

See Figure 3.3-4, the Drainage Exhibit prepared by the project applicants. At this conceptual project design level, no drainage plan has been submitted for evaluation. Lack of an adequate stormwater drainage system to serve the project site is a ***potentially significant impact.*** Lack of a responsible entity to operate and maintain the project drainage system would be a ***significant impact.***
Water quality impacts associated with stormwater drainage, flood protection of the project site and cumulative impacts of stormwater drainage are addressed in Section 3.4.2.

Mitigation Measures

Implementation of the following measures will reduce impacts associated with a stormwater drainage system to a *less than significant level:*

3.3.2-10a. *The developer shall submit a master drainage plan for the project site for review and approval by the Placer County Public Works Department and the Placer County Flood Control and Water Conservation District with any Specific Plan or entitlement request submitted for property within the project site. The master drainage plan shall address design of any proposed drainage systems as well as drainage flowing into, through, and originating within the project area. The plan shall meet the requirements of the Placer County Land Development and Stormwater Management Manuals in force at the time of plan submittal. The plan shall address phasing of drainage system improvements. Subsequent development within the project site shall be consistent with the approved master drainage plan and any approved revisions thereto. A preliminary master drainage plan shall be submitted as part of the environmental review process for any Specific Plan or the first entitlement request submitted for property within the project site.*

3.3.2-10b. *The Specific Plan shall propose a method to ensure sustainable storm drainage system operation and maintenance and funding. Prior to recordation of any map or acceptance by the County of any improvements within the project area, a County Service Area, Zone of Benefit under CSA #28, community services district, expansion of powers of Foresthill P.U.D., or other mechanism acceptable to the County to ensure adequate storm drainage operations shall be formed or completed.*

3.4 NATURAL RESOURCES

3.4.1 BIOLOGICAL RESOURCES

Setting

Included in this section is an evaluation of the biological resource impacts associated with the development of the proposed Forest Ranch project and a description of the biological resources that occur, or potentially occur, on the project site. The biological analysis was determined based on review of documents pertaining to the natural resources of the project site; examination of aerial photography, biological resources, and vegetation maps; and field investigations. The biological assessment of the proposed project was prepared by Foothill Associates. Foothill Associates' biologists conducted a site assessment on June 6 and June 28, 2002. Field reconnaissance consisted of a habitat assessment within the project boundary. Recent aerial photography was also examined in conjunction with limited ground truthing to identify biological resources and map habitat types.
Available information pertaining to the natural resources of the project site was reviewed by Foothill Associates biologists. These documents include:

- Notice of Preparation for the Proposed Forest Ranch Project (Placer County, 2002)
- California Department of Fish and Game (CDFG) California Natural Diversity Data Base (CNDDB: Colfax, Foresthill, and Michigan Bluff quadrangles, 2002)
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (sixth edition, 2001)
- The Jepson Manual: Higher Plants of California (Hickman, 1993)
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey of Placer County
- The Foresthill General Plan and Environmental Impact Report (Placer County, 1981)
- Draft Foresthill Divide Community Plan Update (Quad Knopf, 2000)

Soils

Soils mapping of the Foresthill area was completed in 1980 by the Natural Resources Conservation Service. Soils found on the Foresthill Divide are widely varied, depending upon a combination of environmental factors, including underlying rocks, climatic conditions, topography, type of native vegetation, and the development stage of the soil. The primary soil groups on the Foresthill Divide are Aiken loam and Aiken cobbly loam, Cohasset loam, Mariposa complex, Mariposa-Josephine complex, Maymen-rock outcrop complex and Sites

loam. Of these soil groups, the project site includes soils from the Aiken loam and Aiken cobbly loam, Cohasset loam, Mariposa and Maymen-rock outcrop complexes.

The Aiken loam, Aiken cobbly loam, and Cohasset loam are deep, well drained soils that form in residuum on volcanic ridges, between elevations of 2000 to 4000 feet. The Cohasset soils are particularly well suited for timber production, as indicated by the ponderosa pine. Mariposa is common to the ridges and south and west-facing slopes. The complex is well-drained with moderately slow permeability, and moderate to high erosion hazard. The Maymen-Rock outcrop complex occurs in the Foresthill area from 1200 to 3500 feet in elevation. Timber production and residential development is limited on the complex due to the slope, shallowness, and rock outcroppings.

Physical and chemical properties of soils may limit construction-related uses of these soils. According to the Placer County General Plan Background Report, construction can be limited due to erosion hazards, hydrologic groups' shrink-swell potential, and risk of corrosion to concrete and uncoated steel.

The project site encompasses the soil types described below, as shown in Figure 3.4-1. Descriptions are excerpted from the Soil Survey of Placer County, California, Western Part (U.S. Department of Agriculture, Soil Conservation Service, in cooperation with University of California Agricultural Experiment Station, 1980). As described in this publication, unless otherwise indicated, statements refer to conditions in the survey area in 1973. Development on the project site is principally proposed to occur on areas with well-drained soils, with moderately slow permeability and slight to moderate erosion hazards.

100-Aiken loam, 2 to 9 percent slopes. This is a very deep, well drained soil underlain by weathered andesitic rock. Natural vegetation is conifer-hardwood forest. Permeability is moderately slow. The hazard of erosion is slight. Most areas are used for wood crops. This Aiken soil is one of the best soils in the area for ponderosa pine production. It is suited to highly intensive management. The major limitations to urban use are the moderately slow permeability of the subsoil, the shrink-swell potential of the subsoil, and the limited ability of the soil to support a load. Dwelling and road construction can be designed to offset most of these limitations. Septic tank absorption fields may not function properly during periods of rain or heavy use because of the moderately slow permeability. Capability units II (irrigated) and III (nonirrigated).

101-Aiken loam, 9 to 15 percent slopes. This is a very deep, well drained soil underlain by weathered andesitic rock. Natural vegetation is conifer-hardwood forest. Permeability is moderately slow. The hazard of erosion is moderate when the soil is bare. Most areas are used for wood crops. This Aiken soil is one of the best soils in the area for ponderosa pine production. It is suited to highly intensive management. The major limitations to urban use are the moderately slow permeability of the subsoil, the shrink-dwell potential of the subsoil, the slope, and the limited ability to support a load. Dwelling and road construction can be designed to offset most of these limitations. Septic tank absorption fields may not function properly during periods of rain or heavy use because of the moderately slow permeability. Capability unit III (irrigated and nonirrigated).

LAND USE SUMMARY

KEY	DESIGNATIONS	ACREAGE	#UNITS	PERCENTAGE
RR-5	RURAL ESTATE 2.3-4.6 AC MIN.	189 AC.	37	7 %
RR-2.3	RURAL RESIDENTIAL 1.0-2.3 AC MIN.	71 AC.	29	3 %
RR-1	RURAL RESIDENTIAL 1.0-2.3 AC MIN.	309 AC.	271	12 %
LD-2	LOW DENSITY RESIDENTIAL 2-4DU/ AC.	190 AC.	334	7 %
LD-3	LOW DENSITY RESIDENTIAL 2-4DU/ AC.	291 AC.	698	11 %
MD-4	MEDIUM DENSITY RESIDENTIAL 4-10DU/ AC.	140 AC.	448	5 %
MD-6	MEDIUM DENSITY RESIDENTIAL 4-10DU/ AC.	83 AC.	396	3 %
RES	*RESORTS AND RECREATION	14 AC.		LESS THEN 1 %
OP	*COMMERCIAL	5 AC.		LESS THEN 1 %
OS	*GREENBELT AND OPEN SPACE	1,128 AC.		43 %
GC	*GREENBELT AND OPEN SPACE (GOLF COURSE)	195 AC.		7 %
	TOTAL	2,615 AC.	*2,213 UNITS	100%

*(WITH NON-RESIDENTIAL USES PERMITTED)

* UNITS REDUCED PER COUNTY SEACTION 30.004

LEGEND

- Forest Ranch Boundary
- Proposed Roads
- Designation Boundary
- Natural Drainage Course

N W E S

1000 0 1000 2000 3000 Feet

Source: GW Consulting Engineers, 2001 / Quad Knopf, Inc., 2002

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Drainage Exhibit

Figure 3.3-4

102-Aiken cobbly loam, 2 to 15 percent slopes. This is a very deep, well drained cobbly soil underlain by weathered andesitic rock. Natural vegetation is conifer-hardwood forest. Permeability is moderately slow. The hazard of erosion is moderate. Most areas are used for wood crops. This Aiken soil is one of the best soils in the area for ponderosa pine production. It is suited to highly intensive management. The major limitations to urban use are the moderately slow permeability of the subsoil, the shrink-dwell potential of the subsoil, the slope, and the limited ability of the soil to support a load. Dwelling and road construction can be designed to offset most of these limitations. Septic tank absorption fields may not function properly during periods of rain or heavy use because of the moderately slow permeability. Capability unit III (irrigated and nonirrigated).

134-Cohasset loam, 2 to 9 percent slopes. This is a deep, well drained soil underlain by weathered andesitic conglomerate. Natural vegetation is conifer-hardwood forest. Permeability is moderate. The hazard of erosion is slight. Most areas are used for wood crops. This Cohasset soil is one of the best soils in the area for ponderosa pine production. It is suited to very intensive management. The major limitations to urban use are the depth to rock, the shrink-swell potential of the subsoil, and the limited ability of the soil to support a load. Dwelling and road construction can be designed to offset most of these limitations. Septic tank absorption fields may not function properly during periods of rain or heavy use because of the depth to rock.

136-Cohasset loam, 15 to 30 percent slopes. This is a deep, moderately steep, well drained soil underlain by weathered andesitic conglomerate. Natural vegetation is conifer-hardwood forest. Permeability is moderate. The hazard of erosion is moderate or high. Most areas are used for wood crops. This Cohasset soil is one of the best soils in the area for ponderosa pine production. It is suited to very intensive management. The major limitations to urban use are the slope, the shrink-swell potential of the subsoil, and the limited ability of the soil to support a load. Dwelling and road construction can be designed to offset the shrink-swell potential and the limited ability to support a load. In locating roads, special care is needed to minimize the heights of cuts and fills. Cuts and fills greater than 4 feet make access to building sites a problem. Septic tank absorption fields may not function properly because of the slope. Capability unit IV (irrigated and nonirrigated).

137-Cohasset cobbly loam, 5 to 15 percent slopes. This is a deep, well drained cobbly soil underlain by weathered andesitic conglomerate. Natural vegetation is conifer-hardwood forest. Permeability is moderate. The hazard of erosion is moderate. Most areas are used for wood crops. This Cohasset soil is one of the best soils in the area for ponderosa pine production. It is suited to very intensive management. The major limitations to urban use are the depth to rock, the slope, the shrink-swell potential of the subsoil, and the limited ability of the soil to support a load. Dwelling and road construction can be designed to offset most of these limitations. Septic tank absorption fields may not function properly during periods of rain or heavy use because of the slope and the depth to rock. Capability unit III (irrigated and nonirrigated).

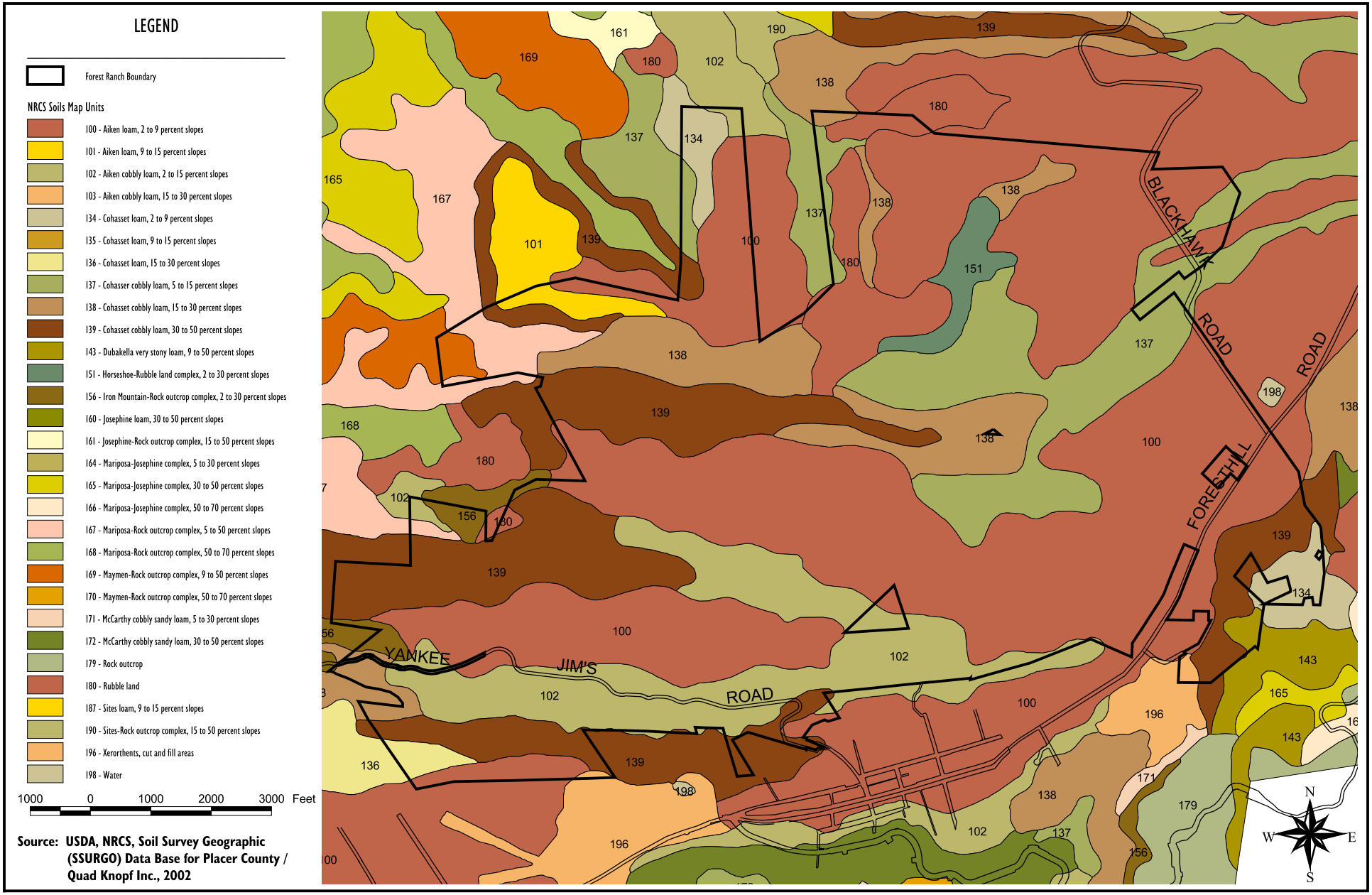
138-Cohasset cobbly loam, 15 to 30 percent slopes. This is a deep, moderately steep, well drained cobbly soil underlain by weathered andesite conglomerate. Natural vegetation is conifer-hardwood forest. Permeability is moderate. The hazard of erosion is moderate or high. Most

areas are used for wood crops. This Cohasset soil is one of the better soils in the area for ponderosa pine production. It is suited to very intensive management. The major limitations to urban use are the slope, the shrink-dwell potential of the subsoil, and the limited ability of the soil to support a load. Dwelling and road construction can be designed to offset the shrink-swell potential and the limited ability to support a load. In locating roads, special care is needed to minimize the heights of cuts and fills. Cuts and fills greater than 6 feet make access to building sites a problem. Septic tank absorption fields may not function properly because of the slope. Capability unit IV (irrigated and nonirrigated).

139-Cohasset cobbly loam, 30 to 50 percent slopes. This is a deep, steep, well drained cobbly soil underlain by weathered andesitic conglomerate. Natural vegetation is conifer-hardwood forest. Permeability is moderate. The hazard of erosion is high. This Cohasset soil is well suited to ponderosa pine production. It is suited to moderate management. The major limitation to timber production is the slope. The steepness of slope is the major limitation to be considered in planning home and road construction. Soil slumps can be a hazard to road cuts because of the low strength and the lateral movement of water in winter. Capability unit VI (nonirrigated).

143-Dubakella very stony loam, 9 to 50 percent slopes. This is a moderately deep, well drained very stony soil underlain by ultrabasic rock. Natural vegetation is brush, stunted conifer, and annual grasses. At a depth of about 31 inches is weathered serpentinitized rock. Permeability is slow. The hazard of erosion is moderate to high. This soil is used mainly for watershed. Some areas are used for wood crops. This soil is not well suited to ponderosa pine production. Steepness of slope, depth to rock, and a slowly permeable clay subsoil are the major limitations to be considered in planning cabin and road construction. Soil slumps can be a hazard to road cuts because of the low strength and the lateral movement of water in winter. Septic tank absorption fields are marginal because of the slowly permeable subsoil and the depth to hard serpentine rock. Capability unit VII (nonirrigated).

151-Horseshoe-Rubble land complex, 2 to 30 percent slopes. This gently sloping soil and Rubble Land are on tertiary river terraces and their side slopes. The unit is about 45 percent Horseshoe soil and 40 percent Rubble land. The Horseshoe soil adjoins and often is isolated by deep, vertically walled hydraulic mine pits. Rubble land is the waste material left in the pit bottoms. Natural vegetation is conifer-hardwood forest, with brush, stunted trees, and barren areas on the tailings. The Horseshoe is a very deep, well drained gravelly soil that formed in alluvium from mixed sources. Permeability is moderate. The hazard of erosion is slight to high. Rubble land consists of areas that have been hydraulically mined and washed with extremely powerful streams of water, leaving pits with steep, clifflike sides and bottoms that are irregularly shaped. The surface area is 90 to 100 percent stones, cobbles, and gravel. Some areas have sufficient fine soil material, together with small tracts of less disturbed areas, to retain somewhat the characteristics of the Horseshoe soil and support tree growth. The hazard of erosion is variable. This unit is used mainly for wood crops and watershed. The Horseshoe soil is well suited to ponderosa pine production. Rubble land in this unit has little value for wood crop production. The Rubble land part of the unit should be used only for construction of access roads. The major limitations of the Horseshoe soil are the slope, the shrink-swell potential, and the limited ability of the soil to support a load. Capability unit VII (nonirrigated).



Source: USDA, NRCS, Soil Survey Geographic (SSURGO) Data Base for Placer County / Quad Knopf Inc., 2002

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Soils Map

Figure 3.4-I

156-Iron Mountain-Rock outcrop complex, 2 to 30 percent slopes. This map unit is in scattered narrow benches on long volcanic ridges at elevations of 3,000 feet to 5,000 feet. It is about 45 percent Iron Mountain soil and 40 percent volcanic rock outcrop (lava cap). Natural vegetation is annual grasses, brush, and stunted conifer. The Iron Mountain is a shallow, somewhat excessively drained cobbly soil that formed in residuum from hard andesitic tuff-breccia. Permeability is moderately rapid. The hazard of erosion is moderate or high. Rock outcrop consists of areas of hard andesitic tuff-breccia, commonly called lava cap. There is no hazard of erosion. This unit is better suited to watershed than to other uses because of the shallow soil and Rock outcrop. It supplies open areas for access to the wildlife habitat in adjacent units. Steepness of slope, Rock outcrop, and the depth to hard rock are the major limitations to be considered in planning road construction. Homesites should not be planned on this unit because the soil material is not deep enough to install septic tank absorption fields. Capability unit VII (nonirrigated).

167-Mariposa-Rock outcrop complex, 5 to 50 percent slopes. This gently rolling to steep soil and Rock outcrop are on mountainous uplands at elevations of 1,500 to 4,500 feet. This unit is about 65 percent Mariposa soil and 10 percent Rock outcrop. Natural vegetation is conifer-hardwood forest and scattered brush and grasses. The Mariposa is a shallow or moderately deep, well drained gravelly soil that formed in residuum from fractured vertically tilted schist and slate. Permeability is moderate. The hazard of erosion is moderate or high. Rock outcrop consists of scattered areas of exposed metamorphic rock, generally 1 to 2 square feet, but some areas cover up to 500 square feet. There is no hazard of erosion. This unit is used mainly for wood crops. It is well suited to ponderosa pine production. It is suited to moderate management. Steepness of the slope, the depth to rock, and the rock outcrop are the major limitations to be considered in planning home and road construction. Capability unit VI (nonirrigated).

168-Mariposa-Rock outcrop complex, 50 to 70 percent slopes. This very steep soil and Rock outcrop are on canyon walls at elevations of 1,500 to 4,500 feet. The unit is about 60 percent Mariposa soil and 15 percent Rock outcrop. Natural vegetation is conifer-hardwood forest and scattered brush and grasses. The Mariposa is a shallow or moderately deep, well drained gravelly soil that formed in residuum from fractured vertically tilted schist and slate. Permeability is moderate. The hazard of erosion is very high. Rock outcrop consists of scattered areas of exposed metamorphic rock, generally 1 to 2 square feet, but in some areas it covers up to one-half acre. In the rock outcrop area, there is no hazard of erosion. This unit is used for wood crops and watershed. This unit is suited to ponderosa pine production. It is suited to moderate management. The major limitation to timber production is slope. Capability unit VII (nonirrigated).

169-Maymen-Rock outcrop complex, 9 to 50 percent slopes. This rolling to steep soil and Rock outcrop are on mountainous uplands at elevations of 1,200 to 3,500 feet. The unit is about 50 percent Maymen soil and 20 percent Rock outcrop. Natural vegetation is brush and scattered stunted conifer and hardwood. The Maymen is a somewhat excessively drained, shallow gravelly soil that formed in residuum from hard metamorphic rock. Permeability is moderate. The hazard of erosion is medium or high. Rock outcrop occurs as scattered areas of metamorphic rock. Some are massive areas of up to 5 acres. There is no hazard of erosion in the rock outcrop area. This unit is better suited to watershed than other uses because of the slope,

the shallowness, and Rock outcrop. The steepness of slope, Rock outcrop, and the depth to hard rock are the major limitations to be considered in road construction. This unit is not suitable for home construction because the soil material is not deep enough for the installation of septic tank absorption fields.

180-Rubble land. Rubble land is cobbly and stony mine debris and tailings from dredge or hydraulic mining. It is essentially barren. Grasses and brush are sparse. At higher elevations, noncommercial stands of conifer are regenerating. Nearly all soil material either has been washed away as in hydraulic mining, or has been buried, as in dredge mining. Surface runoff and the hazard of erosion are variable. Rubble land is used mainly for watershed. It also provides some habitat for wildlife. Some areas are a source of aggregate. Capability unit VIIIs (nonirrigated).

Habitat Communities

The habitat communities occurring on the project site are discussed below. Common wildlife and plant species observed, or expected to occur, in these areas and special-status species and sensitive plant habitat expected, or known to occur, in these areas are also addressed below. Figure 3.4-2 illustrates the habitat communities located on the project site. Habitat types occurring on the project site include mixed coniferous forest, montane hardwood, mixed chaparral, open water, and river/stream. Additionally, several ruderal/barren areas occur within these habitats. These areas are adjacent to roads within staging areas used during previous timber harvest. Ruderal/barren areas are highly disturbed, providing marginal plant and wildlife habitat.

Mixed Coniferous Forest. Mixed coniferous forest is the dominant habitat type occurring on the project site. This habitat is common in the region and is comprised of several species of trees including California black oak (*Quercus kelloggii*), Douglas fir (*Psudotsuga menziesii*), incense cedar (*Calocedrus decurrans*), madrone (*Arbutus menziesii*), and ponderosa pine (*Pinus ponderosa*). Understory species observed or expected to occur in this habitat include blackberry (*Rubus* spp.), deergrass (*Mulhenbergia rigens*), hedgehog dogtail (*Cynosurus echinatus*), manzanita (*Arctostaphylos viscida*), mountain misery (*Chaemabatia foliosa*), and wild onions (*Allium* spp.).

Mixed coniferous forest habitat provides breeding, foraging, and shelter habitat for a large diversity of wildlife species. Species observed or expected to occur within this habitat include brown-headed cowbird (*Molothrus ater*), chipping sparrow (*Spizella passerine*), mountain chickadee (*Poecile gambeli*), northern goshawk (*Accipiter gentiles*), Steller's jay (*Cyanocitta stelleri*), mule deer (*Odocoileus hemionus californicus*), and western gray squirrel (*Sciurus griseus*). Additional species associated with mixed coniferous forest habitats include northern flicker (*Colaptes auratus*), red-shoulder hawk (*Buteo lineatus*), yellow-rumped warbler (*Dendroica coronata*), black bear (*Ursus americanus*), mountain lion (*Felis concolor*), and raccoon (*Procyon lotor*).

Montane Hardwood. Montane hardwood is interspersed throughout the project site. This habitat is dominated primarily by blue oak (*Quercus douglasii*), interior live oak (*Quercus wislizenii*),

and California black oak. Additional tree species observed or expected to occur in this habitat include madrone, ponderosa pine, and foothill pine (*Pinus sabiniana*). Understory species observed or expected to occur in this habitat include brodiaea (*Brodiaea* sp.), ceanothus (*Ceanothus* spp.), farewell-to-spring (*Clarkia purpurea*), manzanita, mules ears (*Wyethia angustifolia*), poison oak (*Toxicodendron diversilobum*), and wild oats (*Avena* sp.). Additional understory species include coyotebrush (*Baccharis pilularis*), hedgehog dogtail, Italian ryegrass (*Lolium multiflorum*), and rose clover (*Trifolium hirtum*).

Wildlife species utilize montane hardwood habitats for breeding, foraging, and shelter. Species observed or expected to occur in this habitat include red-tailed hawk (*Buteo jamaicensis*), scrub jay, turkey vulture (*Meleagris gallopavo*), western bluebird (*Sialia mexicana*), western tanager (*Piranga ludoviciana*), mule deer, and raccoon. Additional species associated with montane hardwood habitats include American crow (*Corvus brachyrhyncos*), great horned owl (*Bubo virginianus*), northern flicker, Nuttall's woodpecker (*Picoides nuttallii*), blacktail jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), coyote (*Canis latrans*), and raccoon.

Mixed Chaparral. Mixed chaparral occurs in the western portion of the project site. This habitat is dominated by shrubs such as manzanita, chamise (*Adenostoma fasciculatum*), coffeeberry (*Rhamnus californica*), red shank (*Adenostoma sparsifolium*), and toyon (*Heteromeles arbutifolia*). Herbaceous species observed or expected to occur in this habitat include coyotebrush (*Baccharis pilularis*), cudweed (*Gnaphalium* sp.), and St. John's wort (*Hypericum* sp.).

Mixed chaparral habitat supports suitable breeding, foraging, and shelter habitat for numerous species of wildlife. Wildlife species observed or expected to occur within this habitat include ash-throated flycatcher (*Myiarchus cinerascens*), Bewick's wren (*Thryomanes bewickii*), California quail (*Callipepla californica*), spotted towhee (*Pipilo erythrophthalmus*), turkey vulture, blacktail jackrabbit, and mule deer.

Open Water. Nick Welch Spring and an unnamed pond, located in the northeastern portion of the project site, provide valuable habitat for wildlife. Vegetation within these habitats consists of sparse riparian vegetation around the margins. Predominant plant species observed include big-leafed maple (*Acer macrophyllum*), cattails (*Typha angustifolia*), Himalayan blackberry (*Rubus discolor*), white alder (*Alnus rhombifolia*), and willow (*Salix* sp.).

Several aquatic species utilize open water habitats including fish species, bullfrog (*Rana catesbeiana*), and Pacific chorus frog (*Pseudacris regilla*), as well as avian and mammal species. Fish species expected to occur in these habitats include bass (*Micropterus* sp.), bluegill (*Lepomis macrochirus*), and mosquitofish (*Gambusia affinis*). Additional wildlife species observed or expected to occur in association with these habitats include belted kingfisher (*Ceryle alcgon*), mule deer and raccoon.

River/Stream. Several drainages occur on the project site. This habitat type includes perennial and intermittent drainages within Devil's Canyon, First and Second Brushy Canyons, and Young American Canyon, which are all tributaries to the North Fork of the American River. An

unnamed tributary to Nick Welch Spring, which is perennial, is also included. Drainages on the project site are sparsely vegetated with riparian vegetation and do not exhibit appreciable difference in vegetation from the surrounding upland habitat.

Wildlife species associated with the intermittent drainage habitat on the project site includes primarily aquatic species such as bullfrog and Pacific chorus frog. Numerous avian and mammal species forage in this habitat including belted kingfisher, northern flicker, mule deer, and raccoon.

Sensitive Habitats. Sensitive habitats include those that are of special concern to resource agencies or those that are protected under CEQA, Section 1600 of the California Fish and Game Code, or Section 404 of the Clean Water Act. Additionally, sensitive habitats are protected under the specific policies outlined in the Foresthill General Plan. Sensitive habitats on the project site include Nick Welch Spring and associated intermittent drainage, drainages associated with Devil's Canyon, First and Second Brushy Canyons, Young American Canyon, and an unnamed pond, native oak trees, riparian habitat, and wildlife movement corridors (see Figure 3.4-2).

Native Oak Trees. The mixed coniferous forest and montane hardwood habitats on the project site support a high diversity of wildlife species and contain numerous blue oaks, California black oaks, and interior live oaks. Although mixed coniferous forest and montane hardwood habitats are not considered critical habitats under state or federal law and are not afforded special protection, loss of oak trees is a concern of the CDFG and CNPS because of their continued decline throughout California. In addition, the Placer County Tree Ordinance regulates all projects with the potential to affect any protected trees. Protected trees are defined as any native tree species with a diameter at breast height (DBH) of six inches or greater.

Riparian Habitat. Sparse riparian vegetation occurs around the margins of open water habitat and along the river/stream habitat on the project site. Although riparian habitat is not recognized under state or federal law as critical habitats, the Foresthill General Plan addresses the protection of riparian habitat by emphasizing the importance of their identification and protection. Additionally, a streambed alteration agreement with the CDFG may be required.

Wildlife Movement Corridors

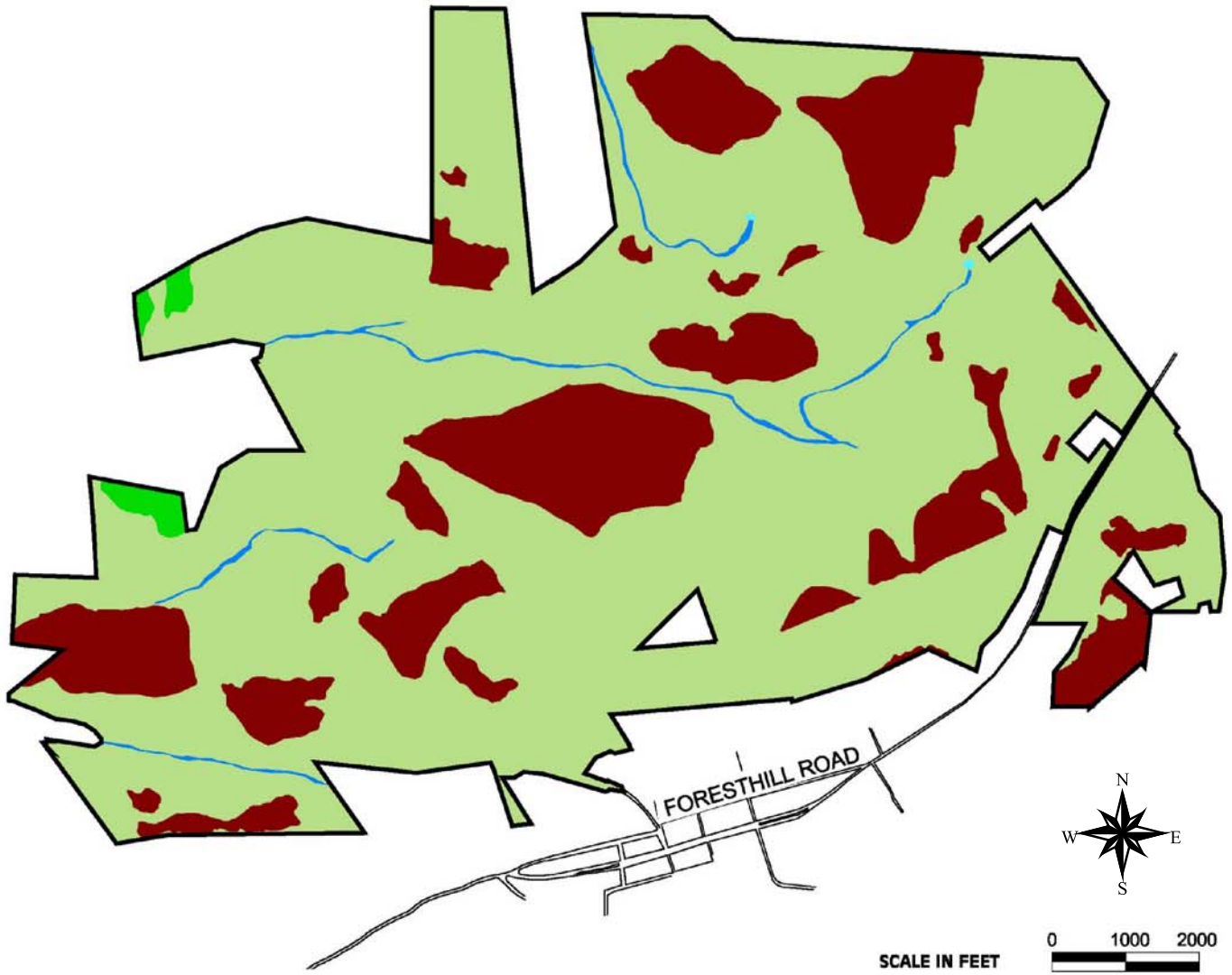
Wildlife movement corridors are established migration routes frequently utilized by wildlife that provide shelter and sufficient food supplies to support wildlife species during migration. Movement corridors generally consist of meadow, riverine, woodland, and forested habitats that span contiguous acres of undisturbed habitat. Additionally, movement corridors provide habitat for resident wildlife, enabling these species to move within areas of undisturbed habitats. Wildlife movement corridors are an important element of resident species home ranges, including black bear, coyote, and mountain lion. As a result, wildlife movement corridors are considered a sensitive resource with the CDFG and Placer County. Although the project site undoubtedly supports wildlife movement corridors, any significant movement through the project site likely follows the open water and river/stream habitats, which are proposed to be left

HABITATS COMMUNITIES		ACREAGE
	Mixed Coniferous Forest[1]	2010.50
	Mixed Chaparral [1]	19.28
	Montane Hardwood Forest	563.09
	TOTAL:	2592.87

SENSITIVE HABITATS		ACREAGE
	River/Stream[2]	31.28
	Open Water[2]	0.75
	TOTAL:	32.03

[1] Habitats contain oak trees that are potentially regulated by the Placer County Tree Ordinance.

[2] Riparian habitat, which is protected under the Foresthill General Plan, is adjacent to the river/stream and open water habitats; however, due to the scale of the map this habitat is not shown. Therefore, no acreage is available.



Source: Foothill Associates, 2002 / Quad Knopf Inc., 2002

Quad Knopf

FOREST RANCH EIR

Habitat Communities and Sensitive Habitats

Figure 3.4-2

in open space. Therefore, no significant blockages of wildlife are expected to result from the proposed project.

Listed and Special Status Plants

The CNDDB lists two special-status plant species, Brandegee's clarkia (*Clarkia biloba brandegeae*) and Nissenan manzanita (*Arctostaphylos nissenana*), as occurring within a five-mile radius of the project site. Additionally, Butte County fritillary (*Fritillaria eastwoodiae*), Layne's ragwort (*Senecio layneae*), Pine Hill flannelbush (*Fremontodendron decumbens*), red-anthered rush (*Juncus marginatus* var. *marginatus*), Red Hill soaproot (*Chlorogalum grandiflorum*), saw-toothed lewisia (*Lewisia serrata*), scadden flat checkerbloom (*Sidalcea stipularis*), Stebbins' morning glory (*Calystegia stebbinsii*), Stebbins' phacelia (Phacelia stebbinsii), and woolly violet (*Viola tomentosa*) were listed on the USFWS special-status species list. Based on literature review, soil analysis, and species range information, suitable habitat for Brandegee's clarkia, Butte County fritillary, Layne's ragwort, Nissenan manzanita, Pine Hill flannelbush, Red Hills soaproot, Stebbins' morning glory, and Stebbins' phacelia occurs on the project site. Of these species, Butte County fritillary, Layne's ragwort, Nissenan manzanita, Pine Hill flannelbush, Red Hills soaproot, Stebbins' morning glory, and Stebbins' phacelia have a low potential to occur on the project site. Brandegee's clarkia has a medium potential to occur on the project site.

Butte County Fritillary. Butte County fritillary is a federal species of concern and is listed with the CNPS as a 1B species. Butte County fritillary occurs in chaparral, cismontane woodlands, and lower montane coniferous forests in openings on serpentinite soils. This species is found in elevations ranging from 160 to 4,900 feet above MSL. Suitable soil conditions for this species are present within the montane hardwood habitat in the southeastern portion of the project site, which is designated as open space. Therefore, Butte County fritillary is not expected to be adversely affected by the proposed project.

Layne's Ragwort. Layne's ragwort is listed federally threatened, listed rare in California, and is considered a 1B species with the CNPS. This species occurs within chaparral and cismontane woodland habitats on serpetinite or gabbroic soils. Layne's ragwort is known from elevations ranging between 650 to 3,200 feet above MSL. The montane hardwood habitat in the southeastern portion of the project site supports suitable habitat for this species; however, this habitat is within an area designated as open space. Consequently, this species is not expected to be adversely affected by the proposed project.

Nissenan Manzanita. Nissenan manzanita is a federal species of concern and is listed with the CNPS as a 1B species. This species occurs in elevations ranging from 1,470 to 3,600 feet above MSL in closed-cone coniferous forest and chaparral habitats. The CNDDB lists one record of this species within a five-mile radius of the project site. Because suitable habitat for this species occurs within the chaparral habitat in the northwestern portion of the project site, which is designated as open space, Nissenan manzanita is not expected to be adversely affected by the proposed project.

Pine Hill Flannelbush. Pine Hill flannelbush is federally listed as endangered and is a state listed rare species. This species is also listed by the CNPS as a 1B species. Pine Hill flannelbush occurs in chaparral and cismontane woodland habitats on gabbroic or serpentinite soils. This species is known from ten occurrences within El Dorado County and one record in Nevada County. No records of this species are listed with the CNDDB within a five-mile radius of the project site. Because this species is extremely rare, it is unlikely that it occurs on the project site. In addition, suitable habitat for this species is within an area designated as open space. Therefore, this species is not expected to be adversely affected by the proposed project.

Red Hills Soaproot. Red Hills soaproot is a federal species of concern and is a CNPS 1B listed species. This species occurs in chaparral, lower montane coniferous forest, and cismontane woodland habitats within 800 to 3,290 feet above MSL. This species requires serpentinite and gabbro derived soil conditions. The montane hardwood habitat within the southeastern portion of the project site supports suitable habitat for Red Hills soaproot; however, this habitat is within an area designated as open space. Therefore, this species is not expected to be adversely affected by the proposed project.

Stebbins's Morning Glory. Stebbins's morning glory is federally and state listed as endangered. This species is also listed by the CNPS as a 1B species. Open chaparral and cismontane woodlands represent suitable habitat for this species; however, Stebbins's morning glory is restricted to serpentinite or gabbroic soil conditions within these habitats. Suitable habitat for this species occurs within the montane hardwood habitat in the southeastern portion of the project site; however, this habitat is within an area designated as open space. Therefore, Stebbins's morning glory is not expected to be adversely affected by the proposed project.

Stebbins's Phacelia. Stebbins's phacelia is a federal species of concern and is listed with the CNPS as a 1B species. This species occurs on metamorphic rock outcrops in a variety of habitats including lower montane coniferous forest, cismontane woodland, and meadows. Stebbins's phacelia occurs in elevations ranging from 1,900 to 6,600 feet above MSL. Because suitable habitat for this species occurs within the mixed coniferous forest habitat in the northwestern portion of the project site, which is designated as open space, this species is not expected to be adversely affected by the proposed project.

Brandegee's Clarkia. Brandegee's clarkia is listed with the CNPS as a 1B species. This species occurs in elevations ranging from 970 to 2,900 feet above MSL in chaparral and cismontane woodland habitats. The CNDDB lists one record of this species within a five-mile radius of the project site. Suitable habitat for this species occurs throughout the project site. Consequently, this species may occur on the project site.

Wetlands/Waters of the United States

Waters of the United States include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Boundaries between jurisdictional waters and uplands are determined in a variety of ways depending on which type of waters is present. Methods for delineating wetlands and non-tidal waters are described below.

- Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [33 C.F.R. §328.3(b)]. Presently, to be a wetland, a site must exhibit three wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology existing under the "normal circumstances" for the site.

- The lateral extent of non-tidal waters is determined by delineating the ordinary high water mark (OHWM) [33 C.F.R. §328.4(c)(1)]. The OHWM is defined by the Corps as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" [33 C.F.R. §328.3(e)].

Sensitive habitats include those that are of special concern to resource agencies or those that are protected under CEQA, Section 1600 of the California Fish and Game Code, or Section 404 of the Clean Water Act. Additionally, sensitive habitats are protected under the specific policies outlined in the Foresthill General Plan. Sensitive habitats on the project site include potential waters of the U.S., which include Nick Welch Spring and associated intermittent drainage, drainages associated with Devil's Canyon, First and Second Brushy Canyons, and Young American Canyon, and an unnamed pond, native oak trees, riparian habitat, and wildlife movement corridors (see Figure 3.4-2).

Jurisdictional waters of the U.S. include jurisdictional wetlands as well as other waters of the U.S. such as creeks, ponds, and intermittent drainages. Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Corps, 1987). The majority of jurisdictional wetlands in the United States meet three wetland delineation criteria: Hydrophytic vegetation, hydric soils, and wetland hydrology. Jurisdictional waters of the U.S. can also be defined by exhibiting a defined bed and bank and ordinary high water mark (OHWM). As discussed in Regulatory Setting above, jurisdictional waters of the U.S. are subject to Section 404 of the CWA and are regulated by the Corps. Jurisdictional waters of the U.S. include jurisdictional wetlands (vernal pools, seasonal wetlands, etc.) and "other" waters of the U.S. (intermittent drainages).

Potential jurisdictional waters of the U.S. within the project site include a spring, a pond, and perennial and intermittent drainages. Figure 3.4-2 identifies potential jurisdictional waters of the U.S. within the project site. A formal wetland delineation of the project site has not been conducted as of this time, and additional water features considered jurisdictional by the Corps may occur within the project site. A formal three-parameter Corps delineation of the project site would result in the identification of such features.

Fish and Wildlife

The CDFG has jurisdiction under Section 1600 *et seq.* of the California Fish and Game Code over fish and wildlife resources of the state. Under Section 1603, a private party must notify the CDFG if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds…except when the department has been notified pursuant to Section 1601." If an existing fish or wildlife resource may be substantially adversely affected by the activity, the CDFG may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the party, they may enter into an agreement with the CDFG identifying the approved activities and associated mitigation measures.

Special-Status Species

The following discussion describes the plant and animal species that have been afforded special recognition by federal, state, or local resource agencies or organizations. Listed and special-status species are of relatively limited distribution and may require specialized habitat conditions. Listed and special-status species are defined as:

- Listed or proposed for listing under the state or federal Endangered Species Acts;
- Protected under other regulations (e.g., Migratory Bird Treaty Act);
- CDFG Species of Special Concern;
- Listed as species of concern by CNPS or USFWS; or
- Receive consideration during environmental review under CEQA.

Special-status species were considered for this analysis based on field reconnaissance results, a review of the CNDDB database, a review of the USFWS lists for special-status species occurring in the region, and CNPS literature (see Table 3.4-1). Only species that are known to occur, or that may potentially occur, on the project site based on the analysis in the table are discussed further in this EIR. Figure 3.4-3 shows results of the CNDDB search.

Table 3.4-1
Listed and Special Status Species Potentially Occurring in the Project Vicinity

Species	Federal (USFWS)	State (CDFG)	CNPS	Habitat	Potential for Occurrence
Plants					
Brandegee's clarkia *Clarkia biloba brandegeae*	--	--	1B	Chaparral and cismontane woodlands below 2,900 feet.	**Medium**; species may occur in mixed chaparral and montane hardwood habitats on the site. Additionally, there is a known occurrence of this species within five miles of the site.
Butte County fritillary *Fritillaria eastwoodiae*	SC	--	1B	Chaparral, cismontane woodlands, and lower montane coniferous forest in openings on serpentinite soils.	**Low**; although serpentinite-derived soils occur in the southeastern portion of the site.
Layne's ragwort *Senecio layneae*	FT	CR	1B	Chaparral and cismontane woodland habitats on serpentinite or gabbroic soil	**Low**; although serpentinite-derived soils occur in the southeastern portion of the site.

Species	Federal (USFWS)	State (CDFG)	CNPS	Habitat	Potential for Occurrence
				conditions.	
Nissenan manzanita *Arctostaphylos nissenana*	SC	--	1B	Close cone coniferous forest and chaparral habitats.	**Low**; although suitable habitat occurs in the western portion of the site. Additionally, there is a known occurrence of this species within five miles of the site.
Pine Hill flannelbush *Fremontodendron decumbens*	FE	CR	1B	Chaparral and cismontane woodland habitats on gabbroic or serpentinite soils.	**Low**; although serpentinite soils occur in the southeastern portion of the site.
Red-anthered rush *Juncus marginatus* var. *marginatus*	--	--	2	Freshwater marsh and other wetlands.	**Unlikely**; due to the lack suitable habitat on the site. The site is outside the known range of this species.
Red Hills soaproot *Chlorogalum grandiflorum*	SC	--	1B	Cismontane woodland, chaparral, and lower montane coniferous forest habitats on serpentinite or gabbroic soil conditions.	**Low**; although serpentinite-derived soils occur in the southeastern portion of the site.
Saw-toothed lewisia *Lewisia serrata*	SC	--	1B	Occurs on metamorphic cliffs in lower coniferous forest, broadleafed upland forest, and riparian forest habitats.	**Unlikely**; due to the lack of suitable habitat on the site.
Scadden flat checkerbloom *Sidalcea stipularis*	SC	CE	1B	Freshwater marsh and other wetlands	**Unlikely**; due to the lack of suitable habitat on the site. The site is outside the known range of this species.
Stebbins' morning glory *Calystegia stebbinsii*	FE	CE	1B	Open chaparral and cismontane woodland habitats on serpentinite or gabbroic soil conditions.	**Low**; although serpentinite-derived soils occur in the southeastern portion of the site.
Stebbins' phacelia *Phacelia stebbinsii*	SC	--	1B	Occurs on metamorphic rock outcrops in a variety of habitats including cismontane woodland, lower coniferous forest, and meadow habitats.	**Low**; although suitable habitat occurs in mixed coniferous forest habitat in the northwestern portion of the site.
Woolly violet *Viola tomentosa*	--	--	1B	Lower montane coniferous forest, subalpine coniferous forest, and upper montane coniferous forest habitats on gravelly soil conditions.	**Unlikely**; the site is below the elevational range (4,700-6,560 ft) for this species.
Invertebrates					
Sagehen Creek goracean caddisfly *Goracean caddisfly*	SC	--	--	Unknown	*
Shirttail Creek stonefly *Megaleuctra sierras*	SC	--	--	Unknown	*
South Forks ground beetle *Nebria darlingtoni*	SC	--	--	Unknown	*

Species	Federal (USFWS)	State (CDFG)	CNPS	Habitat	Potential for Occurrence
Spiny rhyacophilan caddisfly *Rhyacophila spinata*	SC	--	--	Cool, running water.	**Low**; although suitable habitat occurs within the river/stream habitat on the site.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	--	--	Elderberry shrubs (host plant).	**Low**; although no shrubs were found during the field reconnaissance, elderberry shrubs may occur on the site.
Yates' snail *Ammonitella yatesi*	SC	--	--	Limestone caves and outcroppings, typically on north facing slopes.	**Unlikely**; due to the lack of suitable habitat on the site.
Fish					
Central Valley fall/late fall-run Chinook salmon *Oncorhynchus tshawytscha*	SC	CSC	--	Sacramento River and its tributaries below Keswick Dam.	**Unlikely**; due to blockages (ie., Folsom Dam and Nimbus Dam) in the southern reaches of the American River.
Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha*	FT (PX)	CT	--	Sacramento River and its tributaries below Keswick Dam.	**Unlikely**; due to blockages (ie., Folsom Dam and Nimbus Dam) in the southern reaches of the American River.
Central Valley steelhead *Oncorhynchus mykiss*	FT	--	--	Sacramento River and its perennial tributaries.	**Unlikely**; due to blockages (ie., Folsom Dam and Nimbus Dam) in the southern reaches of the American River.
Delta smelt *Hypomesus transpacificus*	FT	CT	--	Concentrated in Sacramento River channel between Collinsville and Rio Vista.	**Unlikely**; due to the lack of suitable habitat on the project site. The site is outside the known range of this species.
Green sturgeon *Acipenser medirostris*	SC	CSC	--	Sacramento and Klamath River Basins.	**Unlikely**; due to the lack of suitable habitat on the project site. The site is outside the known range of this species
Longfin smelt *Spirinchus thaleichthys*	SC	CSC	--	Concentrated in Suisun, San Pablo, and North San Francisco Bays, lower reaches of Sacramento and San Joaquin River, and Delta.	**Unlikely**; due to the lack of suitable habitat on the project site. The site is outside the known range of this species
Sacramento splittail *Pogonichthys macrolepidotus*	FT	CSC	--	Restricted to Sacramento River below Red Bluff Diversion Dam.	**Unlikely**; due to the lack of suitable habitat on the project site. The site is outside the known range of this species.
Winter-run chinook salmon *Oncorhynchus tshawytscha*	FE	CE	--	Restricted to Sacramento River below Red Bluff Diversion Dam.	**Unlikely**; due to the lack of suitable habitat on the project site. The site is outside the known range of this species.
Amphibians/Reptiles					
California horned lizard *Phrynosoma coronatum frontale*	SC	CSC (Protected)	--	Requires friable soils; occupies a wide variety of habitats.	**Low**; species may be associated with friable soils within mixed chaparral habitat on the site.

Species	Federal (USFWS)	State (CDFG)	CNPS	Habitat	Potential for Occurrence
California red-legged frog *Rana aurora draytonii*	FT	CSC (Protected)	--	Requires slow moving streams, ponds, or marsh habitats with emergent vegetation.	**Low**; species may occur within perennial river/stream and open water habitats on the site. There is a known occurrence of this species within five miles of the site.
Foothill yellow-legged frog *Rana boylii*	SC	CSC (Protected)	--	Perennial streams with cobble substrates and swift-moving water.	**Low**; species may occur within the perennial river/stream habitat on the site.
Mount Lyell Salamander *Hydromantes platycephalus*	SC	CSC (Protected)	--	Restricted to alpine or subalpine vegetation associations with free surface water present.	**Unlikely**; due to the lack of suitable habitat on the site.
Mountain yellow-legged frog *Rana muscosa*	SC	CSC (Protected)	--	Lakes, streams, and ponds in elevations ranging from 4,500 to 11,980 feet in the Sierra Nevada.	**Unlikely**; the site is below the elevational range for this species.
Northwestern pond turtle *Clemmys marmorata marmorata*	SC	CSC (Protected)	--	Permanent water source with nearby basking sites.	**Low**; species may occur within slower perennial reaches of river/stream and open water habitats on the site.
Western spadefoot toad *Scaphiopus hammondii*	SC	CSC	--	Grasslands with seasonal breeding pools	**Unlikely**; due to the lack of vernal pools, other seasonal wetlands, and grasslands on the site.
Birds					
American dipper *Cinclus mexicanus* (nesting)	SLC	--	--	Nests in river/stream habitats in montane regions. May nest in crevice in rocks, behind waterfall, in stump or log in bank.	**Low**; species may nest within river/stream habitat on the site.
American peregrine falcon *Falco peregrinus anatum* (nesting)	D	CE	--	Nests in a wide variety of habitats including woodlands, dense coniferous forest, and coastal habitats near wetlands, lakes, or rivers on high cliffs, banks, dunes or mounds.	**Low**; although no suitable nesting habitat occurs on the site, this species may forage within mixed coniferous forest and montane hardwood habitats on the site.
Bald eagle *Haliaeetus leucocephalus* (nesting and wintering)	FT	CE	--	Nests in the northernmost counties of California within dense conifer stands and woodlands in close proximity to permanent water sources.	**Unlikely**; due to lack of suitable habitat on the site.
Bank swallow *Riparia riparia* (nesting)	--	CT	--	Restricted to riparian areas with vertical cliffs and banks with fine-textured or sandy soil, into which it digs nesting holes.	**Unlikely**; due to the lack of suitable habitat on the site.
Black swift *Cypseloides niger* (nesting)	SC (MNBMC)		--	Nests in moist location on cliffs in the central and southern Sierra Nevada; also known from coastal Santa Cruz and Monterey County and the San Bernardino and	**Low**; due to the lack of suitable nesting habitat, however, species may forage within river/stream habitat on the site. There is a known occurrence of this species within five miles of the site.

Species	Federal (USFWS)	State (CDFG)	CNPS	Habitat	Potential for Occurrence
				San Jacinto mountains.	
Black tern *Chlidonias niger* (nesting colony)	SC	CSC	--	Restricted to freshwater habitats while breeding. Nest on plant matter on the water surface.	**Low**; although species may nest within open water habitat on the site.
Brewer's sparrow *Spizella breweri* (nesting)	SC	--	--	Associated with sagebrush habitats. Can also be found to lesser extent in mountain mahogany, rabbit brush, bunchgrass grasslands with shrubs, bitterbrush, ceonothus, manzanita, and large openings in pinyon-juniper.	**Unlikely**; no suitable habitat occurs on the site.
California spotted owl *Strix occidentalis occidentalis*	SC (MNBMC)	CSC	--	Old growth forest associated with multilayered canopies; associated with mixed coniferous forest, redwood, and Douglas fir forest habitats.	**Low**; although no suitable nesting habitat occurs on the site, this species may forage within mixed coniferous forest and montane hardwood habitats on the site.
Hermit warbler *Dendroica occidentalis* (nesting)	SC	--	--	Nests in mature ponderosa pine, montane hardwood-conifer, mixed conifer, Douglas-fir, redwood, red fir, and Jeffery pine habitats.	**Medium**; species may forage and nest within mixed coniferous forest and montane hardwood habitats on the site.
Lewis' woodpecker *Melanerpes lewis* (nesting)	SC	--	--	Occurs in open oak savannas, broken deciduous, and coniferous habitats with brushy understory. Tends to nest in natural cavities, dead trees, or downed woody debris.	**Low**; species may forage and nest within mixed coniferous and montane hardwood habitats on the site.
Little willow flycatcher *Empidonax traillii brewsteri* (nesting)	SC	--	--	Open river valleys or large mountain meadows with lush growth, nest is dense willow thickets	**Unlikely**; due to the lack of suitable habitat on the site.
Loggerhead shrike *Lanius ludovicianus* (nesting)	SC	CSC	--	Nests in desert, savanna, and open-canopied hardwood, hardwood-conifer, and riparian habitats.	**Low**; species may forage and nest within mixed coniferous forest, montane hardwoods, open water, and river/stream habitats on the site.
Oak titmouse *Baeolophus inornatus*	SLC	--	--	Nests in oak woodland, pine-oak woodland, chaparral, and oak-riparian habitats. Nests are typically constructed in natural tree cavity.	**Medium**; species may forage and nest in mixed chaparral, mixed coniferous, montane hardwood, open water, and river/stream habitats on the site.
Northern goshawk *Accipiter gentiles* (nesting)	SC (MNBMC)	CSC (sensitive)	--	Nests in dense, coniferous forest and lodgepole pine habitats typically on north-facing slopes.	**Low**; due to the lack of optimal nesting habitat on the site, however, species may forage and winter within mixed coniferous forest habitat on the site.
Rufous hummingbird *Selasphorus rufus* (nesting)	SC (MNBMC)	--	--	Nests in a wide variety of habitats; hardwood, hardwood-conifer, meadow,	**Low**; the site is outside the nesting range for this species However, this species may forage within

Species	Federal (USFWS)	State (CDFG)	CNPS	Habitat	Potential for Occurrence
				riparian, meadow and chaparral; in the Trinity Mountains of Trinity and Humboldt Counties.	mixed chaparral, mixed coniferous, montane hardwood, open water, and river/stream habitats on the site.
Tricolored blackbird *Agelaius tricolor* (nesting colony)	SC	CSC	--	Nests in emergent wetlands in dense cattails, blackberry, and willow throughout the Central Valley and California coast.	**Unlikely**; the site is outside the known range of this species.
Western burrowing owl *Athene cunicularia hypugea* (burrowing sites)	SC	CSC	--	Open grassland habitat; often nests in abandoned ground squirrel burrows within grasslands.	**Unlikely**; due to the lack of suitable habitat on the site.
White-faced ibis *Plegadis chihi* (rookery)	SC	CSC	--	Roost in dense, fresh water emergent vegetation.	**Unlikely**; due to the lack of suitable habitat on the site.
White-headed woodpecker *Picoides albolarvatus*	SLC	--	--	Occurs in mixed conifer forest of ponderosa pine and sugar pine, white fir, red fir, Douglas-fir, and black oak.	**Unlikely**; the site is below the elevational range (3,900 feet) for this species.
Raptors (hawks, owls, falcons)	MBTA	CSC (some)	--	Large trees, riparian woodlands and open grasslands, woodlands, forest for foraging	**Medium**; suitable foraging and nesting habitat occurs on the site. Additionally, two red-tailed hawks were observed during the field reconnaissance.
Mammals					
Pacific fisher *Martes pennanti pacifica*	SC	CSC (full species)	--	Dense, closed canopy coniferous forests and riparian habitats in the Sierra Nevada, Cascades, and Klamath mountains ranges.	**Low**; although suitable habitat for this species occurs within the mixed coniferous forest and montane hardwood habitats on the site.
Pine marten *Martes americana*	SC	--	--	Various habitats along the north coast and within the Sierra Nevada, Cascades, and Klamath mountain ranges.	**Low**; although suitable habitat for this species occurs within the mixed coniferous forest and montane hardwood habitats on the site.
San Joaquin pocket mouse *Perognathus inornatus*	SC	--	--	Dry, open grasslands or scrub areas on fine-textured soils.	**Unlikely**; the site is above the elevational range (2,000 feet) for this species.
Sierra Nevada red fox *Vulpes vulpes necator*	SC	CT	--	Lodgepole pine, mixed conifer, montane riparian, and ponderosa pine forests within the Sierra Nevada.	**Unlikely**; the site is below the elevational range (7,000 feet) for this species.
Sierra Nevada snowshoe hare *Lepus americanus tahoensis*	SC	CSC	--	Found only in the Sierra Nevada in young growth mixed conifer, subalpine conifer, red fir, Jeffrey pine, lodgepole pine, and aspen forests.	**Unlikely**; the site is below the elevational range (4,800 feet) for this species.
Bats (fringed myotis bat, greater western mastiff bat, long-eared	SC	CSC	--	Forests and woodlands with sources of water for feeding; maternity roosts in a variety	**Low**; due to the lack of maternity roost, however, this species may forage within mixed coniferous

Species	Federal (USFWS)	State (CDFG)	CNPS	Habitat	Potential for Occurrence
myotis bat, long-legged myotis bat, small-footed bat, spotted bat, and Yuma myotis bat)				of protected areas (e.g. rock crevices, caves, buildings, mine shafts, etc.)	forest, montane hardwood, open water, and river/stream habitats on the site.

FE = federal endangered FT = federal threatened SC = federal species of concern D = delisted PX = critical habitat
C = candidate for listing MNBMC = Migratory Nongame Birds of Management Concern SLC= species of local concern
CE = state endangered CT = state threatened CR = state rare CSC = California species of special concern
1B = CNPS list plants rare, threatened, or endangered in California or elsewhere 2 = CNPS lists plants rare, threatened, or endangered in California, but more numerous elsewhere
*Not enough information is available to accurately address the potential for this species to occur within the planning.
Source: Foothill Associates

Listed and Special Status Animals

Discussed below are the special-status and listed wildlife species that have the potential to occur on the project site. Spiny rhyacophilan cassifly (*Rhyacophila spinat*a), California red-legged frog (*Rana aurora craytonii*), foothill yellow-legged frog (*Rana boylii*), and black swift (*Cypseloides niger*) were recorded in the CNDDB as occurring within five miles of the project site. Additionally, several species were addressed as potentially occurring on the project site (see Table 3.4-1). Of these species, spiny rhyacophilan caddisfly, valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), California horned lizard (*Phrynosoma coronatum frontale*), California red-legged frog, foothill yellow-legged frog, northwestern pond turtle (*Clemmys marmorata marmorata*), American dipper (*Cinclus mexicanus*), American peregrine falcon (*Falco peregrinus anatum*), black swift, black tern (*Chlidonias niger*), California spotted owl (*Strix occidentalis occidentalis*), Lewis' woodpecker (*Melanerpes lewis*), loggerhead shrike (*Lanius ludovicianus*), northern goshawk (*Accipiter gentiles*), rufous hummingbird (*Selasphorus rufus*), Pacific fisher (*Martes pennanti*), pine marten (*Martes american*), and several species of bats have a low potential to occur on the project site. Hermit warbler (*Dendroica occidentalis*), oak titmouse (*Baeolophus inornatus*), and common raptors have a medium potential to occur on the project site.

Spiny Rhyacophilan Caddisfly. The spiny rhyacophilan caddisfly is a federal species of concern. This species occupies rivers and streams and is associated with reaches supporting a continually flowing current and cool temperature conditions. One record of this species is listed with the CNDDB from Lady's Canyon, which is located southeast of the project site. Suitable habitat for this species occurs within the river/stream habitat on the project site; however, this habitat is within areas designated as open space. Therefore, the spiny rhyacophilan caddisfly is not expected to be adversely affected by the proposed project.

Valley Elderberry Longhorn Beetle. Valley elderberry longhorn beetle is a federally listed threatened species. This species is commonly found near riparian habitats within 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 shrubs for the larval stage of its life cycle.

For this reason, elderberry shrubs are considered habitat for this species. Although this species is listed with the USFWS as having once occurred in the project vicinity, no elderberry shrubs were found on the project site during field reconnaissance. However, a focused survey for elderberry shrubs has not been conducted for the project site and, consequently, elderberry shrubs may occur within the project site boundary. As a result, valley elderberry longhorn beetle may occur on the project site.

California Horned Lizard. California horned lizard is a federal species of concern and is a California Species of Special Concern. In northern California, this species occurs in loose friable soils within coniferous forest, grassland, and woodland habitats below 6,500 feet. This species was not observed on the project site; however, this species is listed with the USFWS as having once occurred in the project vicinity. Suitable habitat for this species occurs within the mixed chaparral habitat on the project site; however, this habitat is within an area designated as open space. Therefore, the California horned lizard is not expected to be adversely affected by the proposed project.

California Red-Legged Frog. The California red-legged frog is federally listed as threatened and is a California Species of Special Concern. This species is found primarily within slow moving streams, marshes, and ponds in elevations below 4,000 feet. California red-legged frog is extremely rare and declining within the Sierra Nevada. Recent surveys have found this species at only two locations in the Sierra, one population in Butte County and one population in El Dorado County. However, this species historically occurred throughout lower elevations in the Sierra and isolated populations may still be extant. California red-legged frog is recorded in the CNDDB in the Michigan Bluff vicinity, which is located east of the project site; however, this observance is a historical occurrence, recorded prior to 1951. This species is also listed with the USFWS as having once occurred in the project vicinity. Although the California red-legged frog was not observed during field reconnaissance, suitable habitat for this species occurs within the perennial river/stream and open water habitats on the project site. These habitats are within areas designated as open space and as a result, this species is not expected to be adversely affected by the proposed project.

Foothill Yellow-Legged Frog. The foothill yellow-legged frog is a federal species of concern and is a California Species of Special Concern. This species occurs in the foothills of the Sierra Nevada, up to 6,000 feet. Foothill yellow-legged frogs require shallow, flowing water with cobble-sized substrate. The USFWS lists this species as once occurring in the project vicinity and two records of foothill yellow-legged frog are listed with the CNDDB east of the project site in the Michigan Bluff vicinity. Although this species was not observed during the field reconnaissance, suitable habitat for the foothill yellow-legged frog occurs within the perennial river/stream habitat on the project site. This habitat is within areas designated as open s pace and as a result, the foothill yellow-legged frog is not expected to be adversely affected by the proposed project.

Northwestern Pond Turtle. The northwestern pond turtle is a federal species of concern and California Species of Special Concern. This species is typically found along quiet streams and ponds, and feeds on aquatic plants, fish, and invertebrates. The northwestern pond turtle is listed in the USFWS species list as having once occurred in the project vicinity; however, the CNDDB

lists no recent records of this species within five miles of the project site. Although not observed, this species may occur within slower perennial reaches of the river/stream habitat and within the open water habitat on the project site. These habitats are within areas designated as open space and as a result, the northwestern pond turtle is not expected to be adversely affected by the proposed project.

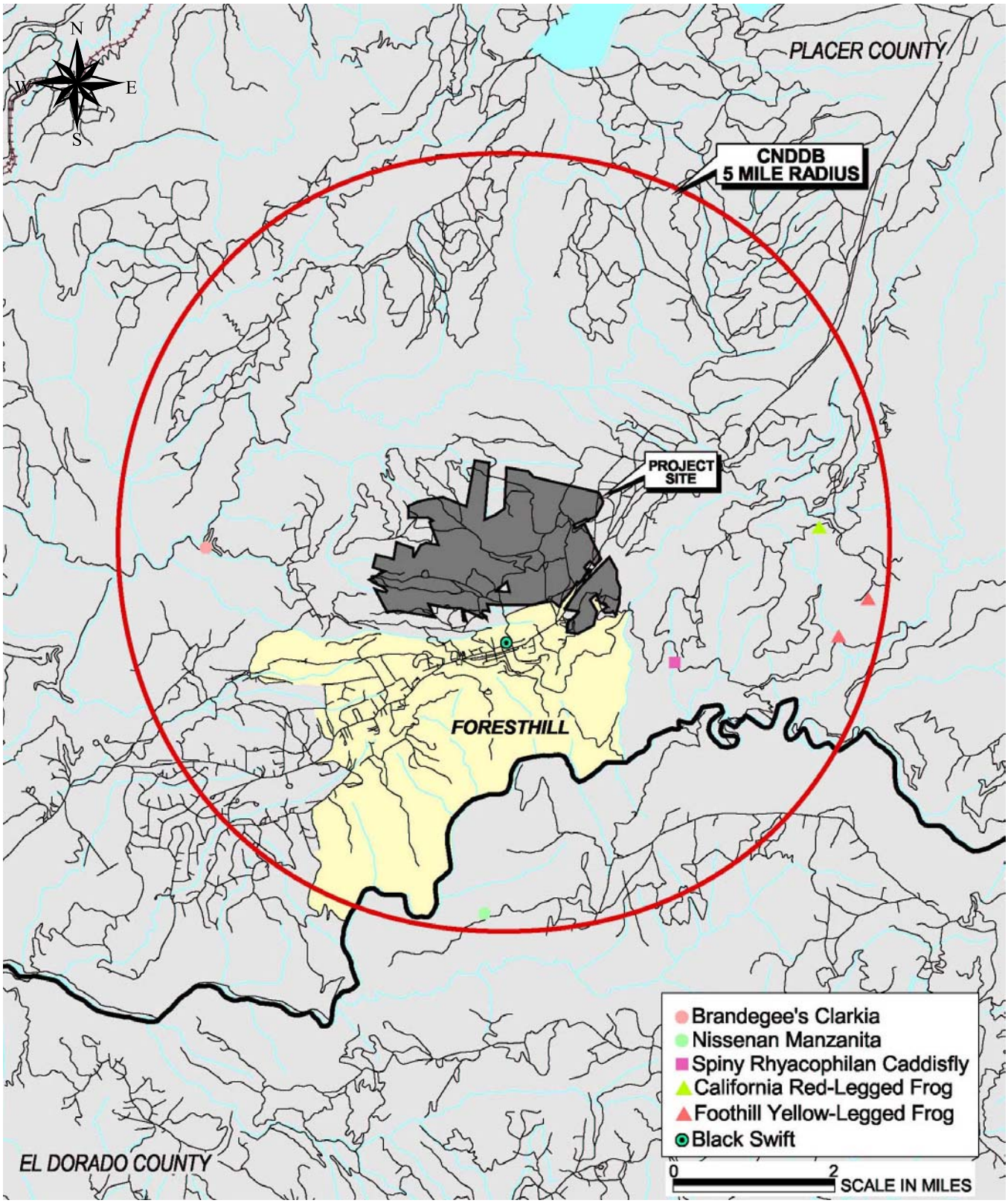
American Dipper. The American dipper is a species of local concern. This species nests in clear fast-flowing river/stream habitat in montane regions. Nests are typically located on a raised site overlooking water; nests on rocks in streams, behind waterfalls, or in stumps or logs in banks. While no records of this species are recorded with the CNDDB within a five-mile radius of the project site, this species is historically known from the project vicinity. The American dipper was not observed during field reconnaissance; however, suitable habitat occurs within the river/stream habitat on the project site. Because this habitat is within areas designated as open space, this species is not expected to be adversely affected by the proposed project.

American Peregrine Falcon. American peregrine falcon is currently state-listed as endangered and was recently removed from the federal endangered species list. This species nests in a wide variety of habitats including woodlands, dense coniferous forests, and coastal habitats. Nests are typically located in close proximity to a water source on cliffs, banks, dunes, or mounds. California populations of the peregrine falcon declined in the 1970s due to DDT contamination, however numbers are increasing statewide. This species is listed in the USFWS species list as having once occurred in the project vicinity; however, the CNDDB lists no recent records of this species in the project vicinity. Although suitable nesting habitat for the American peregrine falcon does not occur on the site, this species may forage within mixed coniferous forest and montane hardwood habitats on the project site.

Black Swift. Black swifts are a federal species of concern. This species nests in the Sierra Nevada and Cascade Range and is also known to nest in the San Gabriel, San Bernardino, and San Jacinto mountains. Black swifts occupy these locations in California during the breeding season and are not known from the state in the winter. Suitable nesting habitat for this species includes crevices on sea cliffs and on cliffs adjacent to waterfalls. A water source is required at the nest location. The USFWS lists this species as once occurring in the project vicinity, and one record is listed with the CNDDB within one mile of the project site. Although no suitable nesting habitat occurs on the project site, this species may forage here. Consequently, black swifts may occur on the project site.

Black Tern. Black terns are a federal species of concern and a California Species of Special Concern. This species is restricted to freshwater habitats while breeding. Nests are typically located in shallow water, close to open water or openings in stands of emergent vegetation. The black tern was not observed on the project site; however, this species is listed with USFWS as having once occurred in the project vicinity. Suitable habitat for this species occurs within the open water habitat on the project site; however, this habitat is within areas designated as open space. Therefore, the black tern is not expected to be adversely affected by the proposed project.

California Spotted Owl. California spotted owl is a federal species of concern and a California Species of Special Concern. This species occurs in old growth forests with multi-layered



Source: Foothill Associates, 2002 / Quad Knopf, Inc., 2002

Quad Knopf

FOREST RANCH EIR

CNDDB

Figure 3.4-3

canopies and is associated with mixed coniferous, redwood, and Douglas fir forest habitats. This species' range spans habitats up to 7,600 feet above MSL. Suitable nesting habitat includes cavities in trees or snags; however, this species is known to nest in abandoned raptor nests, mistletoe clusters, caves, and cliffs. California spotted owl is a year-round resident of California; however, in mountainous regions, such as the Sierra Nevada, this species may move to lower elevations during winter months. No records of this species are listed in the CNDDB within a five-mile radius of the project site. However, this species is listed with the USFWS as having once occurred in the project vicinity. Although old growth forest habitat is not present on the project site, California spotted owls may forage on the project site.

Lewis' Woodpecker. Lewis' woodpecker is a federal species of concern. This species occurs in open oak savannahs, broken deciduous, and coniferous habitats with brushy understory. Lewis' woodpecker tends to nest in natural cavities, dead trees, or downed wood debris. Historically, this species was known from the project vicinity, and suitable nesting habitat for this species is located within the project site. Consequently, this species may utilize mixed coniferous forest and montane hardwood habitats on the project site.

Loggerhead Shrike. Loggerhead shrike is a federal species of concern and is a California Species of Special Concern. This species prefers open habitats with scattered shrubs, trees, posts, fences, or other perches. Loggerhead shrike nest in desert, savanna, and open-canopied hardwood, hardwood-conifer, and riparian habitats. Historically, this species was known from the project vicinity and suitable nesting and foraging habitat for this species is located within the project site. Consequently, loggerhead shrike may utilize mixed coniferous forest, montane hardwood habitats, open water, and river/stream habitats on the project site.

Northern Goshawk. Northern goshawk is a federal species of special concern and is a California Species of Special Concern. This species frequents middle to high elevation mixed coniferous forest habitats, although it prefers dense stands of lodgepole pines on north-facing slopes near water for nesting. Northern goshawk foraging habitats are widespread, consisting of mixed coniferous forest habitats. While this species is not listed in the CNDDB within a five-mile radius of the project site, it is listed as having once occurred in the project vicinity. Optimal nesting habitat for this species does not occur on the project site; however, suitable foraging and wintering habitat occur. Consequently, this species may occur on the project site.

Rufous Hummingbird. Rufous hummingbird is a federal species of concern. This species nests in a variety of habitats, including hardwood, hardwood-conifer, meadow, riparian, and chaparral in the Trinity Mountains of Trinity and Humboldt counties. Although the project site is outside of this species' nesting range, rufous hummingbirds may utilize habitats with abundant wildflower growth on the project site for foraging.

Pacific Fisher. The Pacific fisher is a federal species of special concern and also a California Species of Special Concern. This species occurs in dense, closed canopy coniferous forest and riparian habitats in the Sierra Nevada, Cascades, and Klamath Mountains. This species dens in hollow logs, trees, and snags. Although no recent records are listed in the CNDDB within a five-mile radius of the project site, this species is listed with the USFWS as having once occurred

within the project vicinity. Suitable habitat for Pacific fisher occurs on the project site. Consequently, this species may occur here.

Pine Marten. Pine martens are a federal species of concern. This species occurs in various habitats along the north coast and within the Sierra Nevada, Klamath, and Cascades mountain ranges. This species prefers habitats exhibiting >40% canopy closure and is associated with red fir, lodgepole pine, subalpine conifer, mixed conifer, Jeffrey pine, and eastside pine habitats. This species dens in log, tree, or stump cavities and sometimes burrows under snow adjacent to logs or stumps. Pine martens are sensitive to human disturbance and require habitat with limited human interaction. This species is listed in the USFWS species list historically within the project vicinity. Suitable habitat for this species occurs on the project site and pine martens may use these habitats.

Bats. Bat species including fringed myotis (*Myotis thysanodes*), greater western mastiff bat (*Eumops perotis californicus*), long-eared myotis (*Myotis evotis*), long-legged myotis (*Myotis volans*), small-footed myotis (*Myotis yumanensis*) are species of special concern to federal and state resource agencies. Habitat ranges for these bat species are widespread throughout California; however, many of these species are rare within these habitats. Habitat for bat species consists of foraging habitat, night roosting cover, maternity roost sites, and winter hibernacula. Because suitable foraging and night roosting habitats occur within habitats on the project site, some or all of these bat species are likely to occur here.

Hermit Warbler. The hermit warbler is a federal species of concern. This species nests in mature ponderosa pine, mixed conifer, montane hardwood-conifer, Douglas fir, redwood, red fir, and Jeffrey pine habitats. While this species is not recorded in the CNDDB within a five-mile radius of the project site, it is listed as having once occurred in the project vicinity. Suitable nesting habitat occurs within mixed coniferous forest and montane hardwood habitats on the project site. Consequently, hermit warblers may occur on the project site.

Oak Titmouse. Oak titmouse is a species of local concern. Suitable nesting habitat includes oak woodland, pine-oak woodland, chaparral, and oak-riparian habitats. Nests are typically constructed in natural tree cavities; however, this species will also utilize old woodpecker holes or bird boxes. Historically, this species was known from the project vicinity and potential nesting habitat for this species occurs on the project site. Consequently, this species may utilize chaparral, mixed coniferous forest, montane hardwood, open water, and river/stream habitats on the project site.

Raptors and other Migratory Birds. Numerous raptor species, including red-tailed hawk (*Buteo jamaicensis*), Coopers hawk (*Accipiter cooperii*), and sharp-shinned hawk (*Accipiter striatus*) forage and nest in the Sierra Nevada and surrounding foothills. Raptor nests are protected under the Migratory Bird Treaty Act (MBTA) and Section 3503.5 of the California Fish and Game Code. The mixed coniferous forest and montane hardwood habitats on the project site support suitable nesting habitat for numerous raptor species. Two red-tailed hawks were observed during the field reconnaissance. Consequently, raptor species likely forage and nest on the project site. Migratory birds forage and nest in multiple habitats such as coniferous forests, grasslands, oak woodlands, and riparian woodlands. The nests of all migratory birds are protected under the

MBTA, which makes it illegal to destroy any active migratory bird nest. Numerous migratory bird species have the potential to nest within the project site.

Paleontology

The Placer County General Plan Background Report states that fossilized plant and animal remains could be found in nearly all of Placer County, although no inventory or other information source exists that characterizes the extent, sensitivity, or significance of paleontological resources. According to the Background Report:

> Fossil remains of prehistoric plant and animal life could be found in the sedimentary rocks and volcanic rock sedimentary materials that are present throughout western Placer County. Sediments associated with the Mehrten Formation in the Roseville [and Foresthill Divide] area have been found to contain fossils of terrestrial vertebrates. Fossilized animal remains also may be present in caves associated with the limestone geology that can be found in the central part of the Sierra Nevada foothills.

Large paleo-botanical fossil beds have been found in the Sierra Nevada foothills just north of the Foresthill Divide in Nevada County. They are world class deposits, estimated to be 10 million years old (Slater, pers. comm.). Similarly, there has been a mastodon finding on Forest Service land near Truckee (Lindstrom, pers. comm.). While no such fossil beds or remains have been discovered in the Foresthill Divide area or on the project site, there is a possibility that some could be exposed as a result of a development project.

Placer County General Plan Policies

Recreational and Cultural Resources

5.D.6. The County shall require that discretionary development projects identify and protect from damage, destruction, and abuse, important historical, archaeological, paleontological, and cultural sites and their contributing environment. Such assessments shall be incorporated into a countywide cultural resource data base, to be maintained by the Department of Museums.

5.D.7. The County shall require that discretionary development projects are designed to avoid potential impacts to significant paleontological or cultural resources whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less than significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance, and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American groups), historical, or paleontological consultants, depending on the type of resource in question.

Natural Resources

6.A.1. The County shall require the provision of sensitive habitat buffers which shall, at a minimum, be measured as follows: 100 feet from the centerline of perennial streams, 50

feet from centerline of intermittent streams, and 50 feet from the edge of sensitive habitats to be protected including riparian zones, wetlands, old growth woodlands, and the habitat of rare, threatened or endangered species. Based on more detailed information supplied as a part of the review for a specific project, the County may determine that such setbacks are not applicable in a particular instance or should be modified based on the new information provided. The County may, however, allow exceptions, such as in the following cases:

a. Reasonable use of the property would otherwise be denied;
b. The location is necessary to avoid or mitigate hazards to the public;
c. The location is necessary for the repair of roads, bridges, trails, or similar infrastructure; or
d. The location is necessary for the construction of new roads, bridges, trails, or similar infrastructure where the County determines there is no feasible alternative and the project has minimized environmental impacts through project design and infrastructure placement.

6.A.3. The County shall require development projects proposing to encroach into a creek corridor or creek setback to do one or more of the following, in descending order of desirability:

a. Avoid the disturbance of riparian vegetation;
b. Replace riparian vegetation (on-site, in-kind);
c. Restore another section of creek (in-kind); and/or
d. Pay a mitigation fee for restoration elsewhere (e.g., wetland mitigation banking program).

6.A.4. Where creek protection is required or proposed, the County should require public and private development to:

a. Preserve creek corridors and creek setback areas through easements or dedications. Parcel lines (in the case of a subdivision) or easements (in the case of a subdivision or other development) shall be located to optimize resource protection. If a creek is proposed to be included within an open space parcel or easement, allowed uses and maintenance responsibilities within that parcel or easement should be clearly defined and conditioned prior to map or project approval;
b. Designate such easement or dedication areas (as described in a. above) as open space;
c. Protect creek corridors and their habitat value by actions such as: 1) providing an adequate creek setback, 2) maintaining creek corridors in an essentially natural state, 3) employing creek restoration techniques where restoration is needed to achieve a natural creek corridor, 4) utilizing riparian vegetation within creek corridors, and where possible, within creek setback areas, 5) prohibiting the planting of invasive, non-native plants (such as vinca major and eucalyptus)

within creek corridors or creek setbacks, and 6) avoiding tree removal within creek corridors;

d. Provide recreation and public access near creeks consistent with other General Plan policies;

e. Use design, construction, and maintenance techniques that ensure development near a creek will not cause or worsen natural hazards (such as erosion, sedimentation, flooding, or water pollution) and will include erosion and sediment control practices such as: 1) turbidity screens and other management practices, which shall be used as necessary to minimize siltation, sedimentation, and erosion, and shall be left in place until disturbed areas; and/or are stabilized with permanent vegetation that will prevent the transport of sediment off site; and 2) temporary vegetation sufficient to stabilize disturbed areas.

f. Provide for long-term creek corridor maintenance by providing a guaranteed financial commitment to the County which accounts for all anticipated maintenance activities.

6.A.6. The County shall require that natural watercourses are integrated into new development in such a way that they are accessible to the public and provide a positive visual element.

6.A.8. Where the stream environment zone has previously been modified by channelization, fill, or other human activity, the County shall require project proponents to restore such areas by means of landscaping, revegetation, or similar stabilization techniques as a part of development activities.

6.A.9. The County shall require that newly-created parcels include adequate space outside of watercourses' setback areas to ensure that property owners will not place improvements (e.g., pools, patios, and appurtenant structures), within areas that require protection.

6.B.1. The County shall support the "no net loss" policy for wetland areas regulated by the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.

6.B.2. The County shall require new development to mitigate wetland loss in both regulated and non-regulated wetlands to achieve "no net loss" through any combination of the following, in descending order of desirability: (1) avoidance; (2) where avoidance is not possible, minimization of impacts on the resource; or (3) compensation, including use of a mitigation banking program that provides the opportunity to mitigate impacts to rare, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas.

6.B.3. The County shall discourage direct runoff of pollutants and siltation into wetland areas from outfalls serving nearby urban development. Development shall be designed in such a manner that pollutants and siltation will not significantly adversely affect the value or function of wetlands.

6.B.5. The County shall require development that may affect a wetland to employ avoidance, minimization, and/or compensatory mitigation techniques. In evaluating the level of compensation to be required with respect to any given project, (a) on-site mitigation shall be preferred to off-site, and in-kind mitigation shall be preferred to out-of-kind; (b) functional replacement ratios may vary to the extent necessary to incorporate a margin of safety reflecting the expected degree of success associated with the mitigation plan; and (c) acreage replacement ratios may vary depending on the relative functions and values of those wetlands being lost and those being supplied, including compensation for temporal losses. The County shall continue to implement and refine criteria for determining when an alteration to a wetland is considered a less-than-significant impact under CEQA.

6.C.1. The County shall identify and protect significant ecological resource areas and other unique wildlife habitats critical to protecting and sustaining wildlife populations. Significant ecological resource areas include the following:

a. Wetland areas including vernal pools.
b. Stream environment zones.
c. Any habitat for rare, threatened or endangered animals or plants.
d. Critical deer winter ranges (winter and summer), migratory routes and fawning habitat.
e. Large areas of non-fragmented natural habitat, including Blue Oak Woodlands, Valley Foothill Riparian, vernal pool habitat.
f. Identifiable wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian migratory routes, and known concentration areas of waterfowl within the Pacific Flyway.
g. Important spawning areas for anadramous fish.

6.C.2. The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the reasonable value of the habitat for wildlife is maintained.

6.C.5. The County shall require mitigation for development projects where isolated segments of stream habitat are unavoidably altered. Such impacts should be mitigated on-site with in-kind habitat replacement or elsewhere in the stream system through stream or riparian habitat restoration work.

6.C.9. The County shall require new private or public developments to preserve and enhance existing native riparian habitat unless public safety concerns require removal of habitat for flood control or other public purposes. In cases where new private or public development results in modification or destruction of riparian habitat for purposes of flood control, the developers shall be responsible for acquiring, restoring, and enhancing at least an equivalent amount of like habitat within or near the project area.

6.C.11. Prior to approval of discretionary development permits involving parcels within a significant ecological resource area, the County shall require, as part of the environmental

review process, a biotic resources evaluation of the sites by a wildlife biologist, the evaluation shall be based upon field reconnaissance performed at the appropriate time of year to determine the presence or absence of rare, threatened, or endangered species of plants or animals. Such evaluation will consider the potential for significant impact on these resources, and will identify feasible measures to mitigate such impacts or indicate why mitigation is not feasible. In approving any such discretionary development permit, the decision making body shall determine the feasibility of the identified mitigation measures. Significant ecological resource areas shall, at a minimum, include the following:

a. Wetland areas including vernal pools.
b. Stream environment zones.
c. Any habitat for rare, threatened or endangered animals or plants.
d. Critical deer winter ranges (winter and summer), migratory routes and fawning habitat.
e. Large areas of non-fragmented natural habitat, including Blue Oak Woodlands, Valley Foothill Riparian, vernal pool habitat.
f. Identifiable wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian migratory routes, and known concentration areas of waterfowl within the Pacific Flyway.
g. Important spawning areas for anadramous fish.

6.D.1. The County shall encourage landowners and developers to preserve the integrity of existing terrain and natural vegetation in visually-sensitive areas such as hillsides, ridges, and along important transportation corridors.

6.D.2. The County shall require developers to use native and compatible non-native species, especially drought-resistant species, to the extent possible in fulfilling landscaping requirements imposed as conditions of discretionary permits or for project mitigation.

6.D.8. The County shall require that new development preserve natural woodlands to the maximum extent possible.

6.D.9. The County shall require that development on hillsides be limited to maintain valuable natural vegetation, especially forests and open grasslands, and to control erosion.

6.D.12. The County shall support the retention of heavily vegetated corridors along circulation corridors to preserve their rural character.

6.D.13. The County shall support the preservation of native trees and the use of native, drought-tolerant plant materials in all revegetation/landscaping projects.

6.D.14. The County shall require that new development avoid, as much as possible, ecologically-fragile areas (e.g., areas of rare or endangered species of plants, riparian areas). Where feasible, these areas should be protected through public acquisition of fee title or conservation easements to ensure protection.

6.E.2. The County shall require that new development be designed and constructed to preserve the following types of areas and features as open space to the maximum extent feasible:

a. High erosion hazard areas;
b. Scenic and trail corridors;
c. Streams, streamside vegetation;
d. Wetlands;
e. Other significant stands of vegetation;
f. Wildlife corridors; and
g. Any areas of special ecological significance.

Foresthill General Plan Goals and Policies

Environmental Resources Management Element

Goal 1: To ensure a balanced environment where physical development can occur with minimal adverse effect to the natural resources of the area.

5. Encourage professional, multiple use forest practices on timber producing lands to ensure long-term benefits of forest products, recreational use, open space, fish and wildlife habitat, and watershed protection. Encourage Timber Preserve Zoning to accomplish this objective.

6. Avoid potential conflicts of use by encouraging residential and commercial development away from areas of high timber or agricultural production.

Goal 2: Maintain the quality of air and water resources at a level consistent with adopted federal, state and local standards.

2. Review proposed developments for their potential adverse effect on air and water quality.

Goal 3: Preserve outstanding areas of natural vegetation of fish and wildlife habitat.

1. Preserve the natural condition of all stream influence areas, including flood plains and riparian vegetation areas.

2. Identify and preserve all important fish and wildlife areas.

3. Provide for the protection of all rare or endangered species.

Foresthill Divide Community Plan Policies

Resource Management Element

4.A.1-2 Require developers to use native species (and compatible non-invasive non-native species, where appropriate), especially drought-resistant species, to the extent possible in fulfilling landscaping requirements imposed as conditions of discretionary permits or for project mitigation.

4.A.1-6 Establish procedures for identifying and preserving rare, threatened, and endangered plant species that may be adversely affected by public or private development projects.

4.A.1-9 Require that new development protect, restore, rehabilitate, and manage the native forest-woodlands to the maximum extent possible.

4.A.1-10 Require that development on hillsides be limited to maintain valuable native forest vegetation and to control erosion.

4.A.1-14 Support the preservation of native trees and the use of native seed sources and such seedlings and drought-tolerant plant materials in all revegetation/landscaping projects.

4.A.1-15 Require that new development avoid, as much as possible, ecologically fragile areas (e.g., areas of rare or endangered species of plants, riparian areas). Where feasible, these areas and heritage trees should be protected through public acquisition of fee title or conservation easements to ensure protection.

4.A.2-1 Support the "no net loss" policy for wetland areas regulated by the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service and the California Department of Fish and Game. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.

4.A.2-2 Require new development to mitigate wetland loss in both regulated and non-regulated wetlands to achieve "no net loss" within the Plan area through any combination of the following, in descending order of desirability: (1) avoidance; (2) where avoidance is not possible, minimization of impacts on the resource; or (3) compensation that provides the opportunity to mitigate impacts to rare, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas.

4.A.2-3 Discourage direct runoff of pollutants and siltation into existing wetland areas from outfalls serving nearby development. Development shall be designed in such a manner than pollutants and siltation will not significantly adversely affect the value or function of wetlands.

4.A.2-5 Require development that may affect a wetland to employ avoidance, minimization, and/or compensatory mitigation techniques within the Plan area. In evaluating the level of compensation to be required with respect to any given project, (a) on-site

mitigation shall be preferred to off-site, and in-kind mitigation shall be preferred to out-of-kind; (b) functional replacement ratios may vary to the extent necessary to incorporate a margin of safety reflecting the expected degree of success associated with the mitigation plan; and (c) acreage replacement ratios may vary depending on the relative functions and values of those wetlands being lost and those being supplied, including compensation for temporal losses. Continue to implement and refine criteria for determining when an alteration to a wetland is considered a less-than-significant impact under CEQA.

4.A.3-1 Identify and protect significant ecological resource areas and other unique wildlife habitats critical to protecting and sustaining wildlife populations. Significant ecological resource areas include the following:

a. Wetland areas.
b. Stream environment zones.
c. Any habitat for rare, threatened or endangered animals or plants.
d. Critical deer winter ranges (winter and summer), migratory routes and fawning habitat.
e. Large areas of non-fragmented natural habitat, including Oak Woodlands and Valley Foothill Riparian.
f. Identifiable wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian migratory routes, and known concentration areas of waterfowl within the Pacific Flyway.

4.A.3-2 Require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the reasonable value of the habitat for wildlife is maintained.

4.A.3-8 Require new private or public developments to preserve and enhance existing native riparian habitat unless public safety concerns require removal of habitat for flood control or other public purposes. In cases where new private or public development results in modification or destruction of riparian habitat for purposes of flood control, the developers shall be responsible for acquiring, restoring, and enhancing at least an equivalent amount of like habitat within or near the project area.

4.A.7-1 The County shall require the provision of sensitive habitat buffers which shall, at a minimum, be measured as follows: 100 feet from the centerline of perennial streams, 50 feet from centerline of intermittent streams, and 50 feet from the edge of sensitive habitats to be protected including riparian zones, wetlands, old growth woodlands, and the habitat of rare, threatened or endangered species. Based on more detailed information supplies as a part of the review for a specific project, the County may determine that such setbacks are not applicable in a particular instance or should be modified based on the new information provided. The County may, however, allow exceptions, such as in the following cases:

a. Reasonable use of the property would otherwise be denied;

b. The location is necessary to avoid or mitigate hazards to the public;
c. The location is necessary for the repair of roads, bridges, trails, or similar infrastructure; or
d. The location is necessary for the construction of new roads, bridges, trails, or similar infrastructure where the County determines there is no feasible alternative and the project has minimized environmental impacts through project design and infrastructure placement.

4.A.7-2 The County shall require development projects proposing to encroach into a creek corridor or creek setback to do one or more of the following, in descending order of desirability:

a. Avoid the disturbance of riparian vegetation;
b. Replace riparian vegetation (on-site, in-kind);
c. Restore another section of creek (in-kind); and/or
d. Pay a mitigation fee for restoration elsewhere in the Plan area.

4.A.7-3 Where creek protection is required or proposed, the County should require public and private development to:

a. Preserve creek corridors and creek setback areas through easements or dedications. Parcel lines (in the case of a subdivision) or easements (in the case of a subdivision or other development) shall be located to optimize resource protection. If a creek is proposed to be included within an open space parcel or easement, allowed uses and maintenance responsibilities within that parcel or easement should be clearly defined and conditioned prior to map or project approval;
b. Designate such easement or dedication areas (as described in a. above) as open space;
c. Protect creek corridors and their habitat value by actions such as: 1) providing an adequate creek setback, 2) maintaining creek corridors in an essentially natural state, 3) employing creek restoration techniques where restoration is needed to achieve a natural creek corridor, 4) utilizing riparian vegetation within creek corridors, and where possible, within creek setback areas, 5) prohibiting the planting of invasive, non-native plants (such as vinca major and eucalyptus) within creek corridors or creek setbacks, and 6) avoiding tree removal within creek corridors;
d. Provide recreation and public access near creeks consistent with other General Plan policies;
e. Use design, construction, and maintenance techniques that ensure development near a creek will not cause or worsen natural hazards (such as erosion, sedimentation, flooding, or water pollution) and will include erosion and sediment control practices such as: 1) turbidity screens and other management practices, which shall be used as necessary to minimize siltation, sedimentation, and erosion, and shall be left in place until disturbed areas are stabilized with permanent vegetation that will prevent the transport of

sediment off site; and 2) temporary vegetation sufficient to stabilize disturbed areas.

f. Provide for long-term creek corridor maintenance by providing a guaranteed financial commitment to the County which accounts for all anticipated maintenance activities.

4.A.7-4 Encourage the use of natural stormwater drainage systems to preserve and enhance natural features.

4.A.7-7 The County shall strive to improve the quality of runoff from urban and suburban development through use of appropriate and feasible mitigation measures including, but not limited to: artificial wetlands, grassy swales, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, and other best management practices (BMPs).

4.A.7-8 Continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and runoff from developed areas and to encourage the use of BMPs.

4.A.7-12 Preserve or enhance the aesthetic qualities of natural drainage courses in their natural or improved state compatible with flood control requirements and economic, environmental, and ecological factors.

4.A.7-16 Require that natural watercourses be integrated into new development in such a way that they are accessible to the public and provide a positive visual element.

4.A.7-17 Discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

4.A.7-18 Require project proponents to restore such areas by means of landscaping, revegetation, the use of rice straw or other weed-free vegetative material for erosion control measures, or similar stabilization techniques as a part of development activities where the stream environment zone has previously been modified by channelization, fill, or other human activity.

4.A.7-19 The County shall require that newly-created parcels include adequate space outside of watercourses' setback areas to ensure that property owners will not place improvements (e.g., pools, patios, and appurtenant structures) within areas that require protection.

4.A.8-2 The County shall require slope analysis maps during the environmental review process, or at the first available opportunity of project review, to judge future grading activity, building location impacts, and road construction impacts.

4.A.8-3 Encourage the restoration/reuse of hydraulically mined areas.

4.A.8-4 Require the use of feasible and practical BMPs to minimize the effects of construction, logging, mining, recreation or other activities that could result in soil loss from dust generation and water runoff.

4.A.11-2 The County shall require that new development be designed and constructed to protect, enhance, rehabilitate, and restore the following types of areas and features as open space to the maximum extent feasible;

a. High erosion hazard areas;
b. Scenic and trail corridors;
c. Streams, streamside vegetation;
d. Wetlands;
e. Other significant stands of vegetation;
f. Wildlife corridors, and;
g. To coordinate open space desires with the fuel break system needs for public safety fire protection and access to manage wildfires.

4.A.11-5 The County shall coordinate with local, state, and federal agencies and private organizations to establish visual and physical links among open space areas to form a system that, where appropriate, includes trails. Dedication of easements shall be encouraged, and in many cases, required as lands are developed and built.

4.A.12-2 Require that natural open space buffers be maintained in non-riparian areas adjacent to drainage swales and creeks to reduce erosion and to aid in the natural filtration of run-off waters flowing into these waterways.

4.A.12-3 In cooperation with the Resource Conservation District, identify those segments of watersheds and wetlands affecting waterways important to water resource protection which are in need of rehabilitation through revegetation, and implement a plan for same. Wherever development removes vegetation important to watersheds, require as a part of the environmental review process that revegetation methodologies for watershed protection be identified and implemented.

4.A.12-4 Encourage the retention and/or creation of open space in Foresthill. No land owner should be forced to sell or grant easements for open space purposes except as a condition of project approval and/or where a public safety concern exists.

Regulatory Setting

The following describes federal, state and local environmental laws that are relevant to the CEQA review process with regard to vegetation, wetlands/waters of the United States, fish and wildlife, and water quality.

United States Fish and Wildlife Service (USFWS). The U.S. Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with CEQA and the

National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. The USFWS is responsible for implementation of the FESA. During project review, each agency is given the opportunity to comment on the potential of the project to affect listed plants and animals.

In addition to formal listing under the FESA, species receive additional consideration during the CEQA process. Species that may be considered for review are included on a list of "Species of Concern" developed by the USFWS. It tracks species in the nation whose numbers, reproductive success, or habitat may be threatened. Raptors (birds of prey), migratory birds, and other avian species are protected by a number of state and federal laws. The Federal Migratory Bird Treaty Act (MBTA) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior.

United States Army Corps of Engineers (Corps). The Corps regulates discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act (CWA). "Discharges of fill material" is defined as the addition of fill material into waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes and subaqueous utility lines [33 CFR §328.2(f)]. In addition, Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

National Marine Fisheries Service (NMFS). Similar to the USFWS authority for federally-listed species, the NMFS is responsible for implementation of FESA for listed anadromous fish species. During project review, NMFS is given the opportunity to comment on the potential of the project to affect federally listed anadromous fish species.

California Department of Fish and Game (CDFG). Similar to the FESA, the State of California enacted the California Endangered Species Act (CESA) in 1984. The CESA is intended to operate in conjunction with CEQA to protect endangered and threatened species. The CDFG is responsible for implementation of the CESA. During project review, CDFG is given the opportunity to comment on the potential of the project to affect listed plants and animals.

The CDFG has jurisdiction under Section 1600 *et seq.* of the California Fish and Game Code over fish and wildlife resources of the state. Under Section 1603, a private party must notify the CDFG if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds…except when the department has been notified pursuant to Section 1601." If an existing fish or wildlife resource may be substantially adversely affected by the activity, the CDFG may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the party, they may enter into an agreement with the CDFG identifying the approved activities and associated mitigation measures.

Section 3503.5 of the California Fish and Game Code states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes 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."

California Native Plant Society (CNPS). The CNPS maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review.

Placer County Tree Ordinance. The Placer County Tree Ordinance is intended to preserve native, landmark, and riparian zone trees within the county, except as exempted. As outlined in the Placer County Tree Ordinance, no person, firm, corporation or County agency shall conduct any development activities within the Protected Zone of any Protected Tree unless authorized by a Tree Permit, or as permitted pursuant to approval of a discretionary project.

Impacts and Mitigation Measures

Impact Evaluation Criteria

Based on Appendix G of the State CEQA Guidelines, the project would normally be considered to have a significant adverse impact on soils if it would:

- Result in substantial soil erosion or the loss of topsoil.
- Be located on a soil that is unstable, or that would become unstable as a result of the project.
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

See Section 3.4.2 Hydrology/Water Quality below for additional impact evaluation criteria related to soils.

Section 21001 of the Public Resources Code, the California Environmental Quality Act (CEQA), states California's policies with respect to fish and wildlife, summarized as follows:

- Prevent the elimination of fish and wildlife species due to human activities.
- Ensure that fish and wildlife populations do not drop below self sustaining levels.
- Preserve representatives of all plant and animal communities for future generations.

Section 15065(a) of the State CEQA Guidelines defines a significant adverse effect of a project as one that:

- Has the potential to substantially reduce the habitat of a fish and wildlife species or cause the population to drop below self-sustaining levels
- Threatens to eliminate a plant or animal community

- Reduces the number or restricts the range of an endangered, rare or threatened species

Based on Appendix G of the State CEQA Guidelines, the project would normally be considered to have a significant adverse impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

- Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

- Interfere substantially with the movement of any resident or migratory fish or wildlife species, or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of, an important resource on a population-wide or region-wide basis.

"Endangered, rare or threatened species," as defined in Section 15380 of the Guidelines, are "endangered" when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors; "rare" when although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens, or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species

Act. A species of animal or plant shall be presumed to be "endangered, rare or threatened" if it is listed in Sections 670.2 or 670.5, Title 14, California Code of Regulations, or Title 50, Code of Federal Regulations Section 17.11 or 17.12 pursuant to the Federal Endangered Species Act as rare, threatened, or endangered. A species not included in any listing shall nevertheless be considered to be "endangered, rare or threatened" if the species can be shown to meet the above criteria.

The Federal Endangered Species Act (FESA) of 1973 (50 CFR 17) provides legal protection and requires definition of critical habitat and development of recovery plans for plant and animal species in danger of extinction. California has similar mandates in the California Endangered Species Act (CESA) of 1984 and the California Native Plant Protection Act of 1977. These laws regulate the process by which plant or animal species are listed as endangered or threatened. Some species listed by the State are not necessarily protected by the federal protection agencies, therefore consultation with both the U.S. Fish and Wildlife Service (USFWS) and the CDFG should occur when reviewing projects and their potential impacts to plants, wildlife and their associated habitats.

In addition to federal and state endangered and threatened listings, species may also be listed as a "species of concern" due to their limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational or educational value. These species are not afforded the same legal protection as listed species, but may be added to official lists in the future. There are two general categories for these special interest species: 1) candidates for official federal or state listing as threatened or endangered; and 2) species that are not candidates, but have been unofficially identified as species of special interest by private conservation organizations or local governments.

The CDFG, in conjunction with the CNPS, have compiled a data base, called the Natural Diversity Data Base (NDDB), which references California's rare and endangered plants and animals. Some plants listed by the CNPS may not be officially listed by the State, but many of these would still be protected by CEQA; and any impacts affecting these species and their immediate habitat would be considered significant.

CNPS maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review.

Section 9 of FESA prohibits the "taking" of listed species. If it is believed that a project will inadvertently harm, harass or collect a species, or that a species would suffer due to habitat modifications, the USFWS must be consulted, and subsequent agency recommendations and permits must be obtained and adhered to. With respect to plants, Section 9 states that it is unlawful to import or export, remove and reduce to possession, deliver, receive, carry, transport, or ship, sell or violate any regulation pertaining to such species or any threatened species of plants listed pursuant to the Act.

Section 404 of the Clean Water Act regulates the discharge of fill materials into waters of the United States, including wetlands. In order to be considered a jurisdictional wetland based on U.S. Army Corps of Engineers standards, three general criteria must be met: (1) wetland hydrology – the inundation or saturation by surface or ground water for at least one to two weeks during an average rainfall year; (2) hydric soils – soils that develop from anaerobic conditions due to saturation, flooding, or ponding of water; and (3) hydrophytic vegetation – plants that occur in water, or in soils deficient in oxygen concentration (hydrophytes). If construction alters the local hydrology in the area, a loss of wetland value may result. Environmental Protection Agency guidelines (Section 230.41(b) EPA 1989) define loss of wetland values as:

> The discharge of dredge or fill material in wetlands is likely to damage or destroy habitat and adversely affect the biological productivity of wetlands ecosystems by smothering, by dewatering, by permanently flooding, or by altering substrate elevation or periodicity of water movement.

Any loss of wetland habitat should be viewed as potentially significant in accordance with the federal standard of "no net loss" for the nation's remaining wetlands.

A Streambed Alteration Agreement pursuant to the CDFG Code Section 1600 et seq. must be entered into with CDFG when a project will influence or divert the natural flow of a stream, substantially change its bed or bank, cross a streambed or utilize existing streambed materials. Actions that would require a Section 1600 Agreement are potentially significant.

Based upon Appendix G of the State CEQA Guidelines, the proposed project would normally be considered to have a significant impact on paleontological resources if it would:

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Development which is inconsistent with relevant Placer County General Plan and Foresthill General Plan policies should be considered potentially significant. Because the Foresthill Divide Community Plan is not yet adopted, but has been developed by the Foresthill Community Plan Team and is currently under review for possible adoption, development which is inconsistent with relevant proposed policies may be considered potentially significant, although it is recognized that policies may not be adopted in their current form.

Impact 3.4.1-1 Construction activities resulting in ground disturbance (topographic alteration) could result in a moderate potential for ground instability and erosion within the project site.

Earthwork/grading for structure placement, internal road system development, the golf course, and overall site improvements will be required during development of the project site. Grading activities, such as those anticipated during development, can create the potential for ground instability and erosion. Extensive grading is anticipated for some facilities, such as the golf course.

Slopes within the project site vary from gentle to steep (over 30 percent). Anticipated construction activities will include shallow to substantial cut and fill slopes for site buildings and associated trench excavation. Development on the project site is principally proposed to occur on areas with well-drained soils, with moderately slow permeability, shrink-swell potential and slight to moderate erosion hazards.

Potential ground instability within the project site is not known, as no geotechnical studies have been performed. Construction activities involving ground disturbance could result in a potential for ground instability in portions of the site. Erosion is anticipated to occur in disturbed soil areas. Soil stockpiles may be susceptible to erosion and soil loss. These impacts are anticipated to be ***potentially significant.***

Mitigation Measure

The following measures will reduce the magnitude of potential topographic alteration and erosion impacts to a *less than significant level:*

3.4.1-1a. *A preliminary geotechnical engineering investigation prepared by a licensed civil engineer and consistent with the requirements of the Placer County Grading, Erosion, and Sediment Control Ordinance shall be submitted with the Specific Plan. More detailed geotechnical engineering investigations prepared by a licensed civil engineer and consistent with the requirements of the Placer County Grading, Erosion and Sediment Control Ordinance shall be submitted with each Tentative Subdivision Map application within the project area. Other entitlement requests may be required to prepare project specific geotechnical investigations if findings in the Specific Plan preliminary engineering investigation indicates a need.*

3.4.1-1b. *Erosion and ground instability mitigation measures shall include conformance to the Uniform Building Code and Placer County's Grading, Erosion and Sediment Control Ordinance. The required designs shall include methods to control soil erosion and ground instability. Measures to control soil erosion and mitigate potential differential settlement and construction related ground instability impacts include, but are not limited to:*

1. *Prohibit the placement of habitable structures or individual sewage disposal systems on or in critically expansive soils.*

2. *In landslide hazard areas, prohibit avoidable alteration of land in a manner that could increase the hazard, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes.*
3. *Limit development in areas of steep (in excess of 30%) or unstable slopes, or slope breaks to minimize hazards caused by landslides, liquefaction, construction undercutting or vegetation loss.*

4. *Septic leachfields and drainage plans shall direct runoff and drainage away from steep and/or unstable slopes.*

5. *A California licensed Civil Engineer shall prepare and submit to the Department of Public Works a grading plan and erosion control plan (winterization/ground instability plan) for new development projects prior to any environmental review determination.*

Impact 3.4.1-2 Potential lack of mass balance due to grading on the project site, requiring importation or exportation of fill.

According to the applicant's engineer, estimated earthwork quantities due to grading on the project site are on the following order of magnitude (considering the topography of the site and utilizing very general assumptions regarding typical grading practices for similar uses elsewhere):

Golf course and related accessory uses:	500,000 cubic yards
Professional offices	6,000 cubic yards
Roadways	250,000 cubic yards
RS6 residential lots	120,000 cubic yards
Low density & rural residential, other uses	Not provided

The applicants have indicated that significant grading is not contemplated for other land uses. The applicants have further indicated that earthwork associated with development of the project site will be designed to balance on-site, such that no import or export of material from the project will be required. The locations of specific on-site staging areas and materials storage areas for excavated material have not been identified. The applicants have indicated that specific earthwork quantities will be developed with future development plans for the project site.

Without specific earthwork quantities and grading plans, it is not possible to fully evaluate potential impacts associated with balancing the earthwork on-site. Storage of excess fill could lead to impacts on aesthetics, as well as water quality impacts if drainage courses are affected, or if soils could erode and reach watercourses. Exporting fill off-site would have impacts associated with haul trucks. There may also be a need for engineered soils to be delivered to the site for use in building foundations and/or individual septic systems. These impacts are ***potentially significant.***

Mitigation Measure

The following mitigation measure will reduce the impacts due to site grading to a *less than significant level*:

3.4.1-2. *Prior to approval of a Specific Plan or the first requested entitlement, a grading plan shall be prepared for the project site that complies with the requirements of Article 15.48 of the Placer County Code, Grading, Erosion and Sediment Control Ordinance. Grading plans shall:*

1. *Incorporate sound soil conservation practices and minimize land alterations.*
2. *Limit cuts and fills and balance cut and fill on-site.*
3. *Limit grading to the smallest practical area of land.*
4. *Limit land exposure to the shortest practical amount of time.*
5. *Replant graded areas with native or non-invasive exotic species to ensure establishment of plant cover before the next rainy season.*
6. *Create grading contours that blend with the natural contours on-site or with contours on property immediately adjacent to the area of development.*
7. *Roadways, parking areas, trails and paths shall be designed to fit the natural terrain and minimize erosion.*
8. *Development near or on portions of hillsides shall not cause or worsen natural hazards such as erosion, sedimentation, or water quality concerns.*
9. *Erosion and sediment control measures including temporary vegetation (native or non-invasive exotic species) sufficient to stabilize disturbed areas.*
10. *Incorporate the use of natural stormwater drainage systems to preserve and enhance natural features whenever possible.*
11. *Limit grading activities in the rainy season to the extent possible.*
12. *Indicate that proper control of erosion, sedimentation, siltation and other pollutants will be implemented per NPDES permit requirements and County standards.*
13. *Use landscaping, revegetation, the use of rice straw or other weed-free vegetative material for erosion control measures, or similar stabilization techniques.*

Impact 3.4.1-3 Implementation of the proposed project will result in the removal of mixed coniferous forest habitat.

Implementation of the proposed project will result in eventual removal of an estimated maximum of 1,069 acres of mixed coniferous forest habitat (see Figure 3.4-3). This habitat is common throughout the Sierra Nevada mountain range, and no measures have been established by local, state or federal agencies to regulate the removal of this habitat. Impacts to this habitat are therefore considered ***less than significant***.

Mitigation Measure

No mitigation measures are required.

Impact 3.4.1-4 Implementation of the proposed project will result in the removal of montane hardwood habitat.

Implementation of this proposed project will result in eventual removal of an estimated maximum of 412 acres of montane hardwood habitat (see Figure 3.4-3). This habitat is common throughout the Sierra Nevada mountain range, and no measures have been established by local, state or federal agencies to regulate the removal of this habitat. Impacts to this habitat are therefore considered ***less than significant***.

Mitigation Measure

No mitigation measures are required.

Impact 3.4.1-5 Implementation of the proposed project will result in loss of habitat and may result in the direct take of common resident and migratory wildlife species.

Several species of common resident and migratory wildlife are present, or likely to be present, on the project site. Because these species are common and abundant in the region, they receive no formal protection by federal, state or local resource agencies. Additionally, because the project designates approximately 43 percent of the site for open space, it is likely that wildlife species utilizing the portion of the site designated for development will move to similar adjacent habitat within the project site or offsite. This impact is therefore considered ***less than significant***.

Mitigation Measure

No mitigation measures are required.

Impact 3.4.1-6 Implementation of the proposed project may remove habitat for Brandegee's clarkia potentially occurring on the project site.

Potential habitat for Brandegee's clarkia occurs within the mixed chaparral and montane hardwood habitats on the project site. Populations of this species are known from Butte, El Dorado, Nevada, Placer and Yuba counties. Although this species was not observed during field reconnaissance, suitable habitat occurs throughout the project site. Populations potentially occurring within mixed chaparral habitat are not likely to be affected by project implementation because this habitat occurs in areas designated as open space. However, implementation of the proposed project within montane hardwood habitat may result in removal of habitat for this species. Brandegee's clarkia is a 1B listed plant with the CNPS, which identifies it as a species rare, threatened or endangered in California as well as in other parts of the United States. Impacts to this species are therefore considered ***potentially significant***.

Mitigation Measure

Implementation of the following mitigation measure will reduce project impacts to a *less than significant level:*

3.4.1-6a. *A focused rare plant survey for Brandegee's clarkia shall be conducted by a qualified biologist during the blooming season (May-July) to determine the presence/absence of this species on the site within the development area only. If this species is not found onsite, Mitigation Measure 3.4.1-6b is not required.*

3.4.1-6b. *If the species is found in the development area, each population shall be mapped, and technical assistance from CNPS and the appropriate state or federal agencies shall be required. To the maximum extent possible, plant populations shall be preserved*

and incorporated into the project design. However, if these areas cannot be avoided, offsite land supporting known populations of the species shall be purchased and incorporated into an ecological preserve or conservation easement. If no suitable offsite land supporting the species can be located, the populations within the project site shall be preserved. Offsite mitigation shall occur at a minimum ratio of 1:1 (one plant preserved for each plant impacted). CNPS shall be consulted to evaluate the suitability for transplanting impacted species to suitable habitats within the established offsite preserve or conservation easement. A detailed preserve/conservation easement management plan shall be developed in consultation with the appropriate regulatory agencies that includes species, habitat, and preserve/easement management strategies.

Impact 3.4.1-7 Implementation of the proposed project may result in the removal of potential valley elderberry longhorn beetle habitat.

The valley elderberry longhorn beetle is found near riparian habitats. Because this species is dependent on elderberry shrubs for the larval stage of its life cycle, elderberry shrubs are considered habitat for this species. No elderberry shrubs were observed on the project site during field reconnaissance; however, a focused survey was not conducted, consequently there may be shrubs that were not observed. Because valley elderberry longhorn beetle is a federally listed threatened species, eventual removal of any elderberry shrubs as part of project development would be considered a ***potentially significant impact***.

Mitigation Measure

Implementation of the following mitigation measure will reduce impacts to valley elderberry longhorn beetle to a *less than significant level:*

3.4.1-7a. *A focused survey for elderberry shrubs shall be conducted by a qualified biologist to determine the presence/absence of the valley elderberry longhorn beetle on the project site within the development area only. If no elderberry shrubs are identified onsite, Mitigation Measure 3.4.1-7b is not required.*

3.4.1-7b. *If elderberry shrubs are identified within the development area, consultation with USFWS shall be required. Ideally, the project shall avoid removal or indirect impacts to elderberry shrubs. The USFWS typically requires a 25-foot setback from the outer dripline edge of each shrub. If the shrubs cannot be avoided, a mitigation plan shall be implemented which must include one of more of the following:*

1. *Obtaining credits at an approved mitigation bank; or*
2. *Implementation of an onsite mitigation and monitoring plan that includes transplantation of the shrub(s) and planting of elderberry seedlings.*

Impact 3.4.1-8 Implementation of the proposed project will result in the removal of potential nesting habitat for raptors and other migratory and resident birds.

Mixed coniferous forest and montane hardwood habitats on the project site support potential nesting habitat for raptors and other migratory and resident birds, including American peregrine falcon, black swift, California spotted owl, hermit warbler, Lewis' woodpecker, loggerhead shrike, oak titmouse, northern goshawk, rufous hummingbird, and common raptors. The destruction of active migratory bird nests, including raptors, is a violation of the MBTA, and disruption or destruction of an active raptor nest is also a violation of Fish and Game Code §3503.5. Eventual impacts to nesting raptors and other special-status migratory and resident birds are considered ***potentially significant***.

Mitigation Measure

Implementation of the following mitigation measure will reduce impacts to special-status bird species to a *less than significant level:*

3.4.1-8. *If construction is proposed during breeding season (March-September), a focused survey for raptor and other special-status active bird nests shall be conducted by a qualified biologist within 30 days prior to the beginning of construction activities on the project site. If no active nests are found, no further mitigation is required. If active nests are found, nest locations shall be mapped and distributed to Placer County. No construction activities shall take place within 500 feet of the nest until the young have fledged. Weekly monitoring reports summarizing nest activities shall be submitted to the County until the nest is determined to be inactive. Trees containing nests that must be removed as a result of project implementation shall be removed during the non-breeding season (September to February).*

Impact 3.4.1-9 Implementation of the proposed project will remove potential habitat for Pacific fisher and pine marten.

Pacific fisher and pine marten may utilize the mixed coniferous forest and montane hardwood habitats on the project site as part of their home range. Additionally, these species could den within suitable habitats onsite, although their potential for occurrence is low. These special-status mammal species are protected by federal and state resource agencies. Impacts to these species are therefore considered ***potentially significant.***

Mitigation Measures

Implementation of the following mitigation measure will reduce impacts on special-status mammal species to a *less than significant level:*

3.4.1-9a. *Focused surveys for Pacific fisher and pine marten shall be conducted within the development area only to determine if these species are breeding in this area. A qualified biologist shall conduct the surveys during the breeding season at the time of day each species is most active. Technical assistance from the CDFG and/or USFWS shall be requested to determine appropriate survey techniques. If no evidence of*

these species is found during field surveys, Mitigation Measure 3.4.1-9b is not required.

3.4.1-9b. *If active Pacific fisher/pine marten dens are determined to occur on the site, technical assistance shall be requested from the appropriate regulatory agency to determine further actions and mitigation measures. At a minimum, construction activities shall not occur within 500 feet of an active den/nest.*

Impact 3.4.1-10 Implementation of the proposed project will remove potential roosting habitat for special-status bat species.

Several special-status bat species have the potential to roost within the mixed coniferous forest and montane hardwood habitats on the project site. Bats roost in a variety of locations such as rock crevices, under bark, in trees, in buildings, under bridges, and in culverts. Depending on the species, bats may utilize separate day and night roosts. In addition, winter hibernacula and maternity roosting sites are occupied at different times of the year. These special-status bat species are considered species of concern to CDFG and/or USFWS. Eventual removal of potential roosting habitat is therefore considered a ***potentially significant impact.***

Mitigation Measures

Implementation of the following measure will reduce impacts to special-status bat species to a *less than significant level:*

3.4.1-10a. *Prior to construction, a focused survey shall be conducted to determine the presence/ absence of roosting bats on the project site. Maternity roosts are generally occupied by mothers and young between May and August (Zeiner et al., 1990b). Mitigation Measure 3.4.1-10b is not required if there are no bat species utilizing the project site as roosting habitat.*

3.4.1-10b. *If bats are determined to roost onsite, consultation with CDFG and/or USFWS shall be requested to determine measures to avoid disturbance during construction. If an active maternity roost is identified, at a minimum, no construction activities shall occur within 500 feet until the young are able to fly from the roost. If active day or night roosts are found onsite, measures shall be implemented to safely flush bats from the roosts prior to the onset of construction activities. Such measures may include removal of roosting site during the time of day the roost is unoccupied or the installation of one-way doors, allowing the bats to leave the roost but preventing them from re-entering.*

Impact 3.4.1-11 Implementation of the proposed project will result in the removal and disturbance of oak trees.

Several native oak trees, including blue oaks, California black oaks, and interior live oaks occur within the mixed coniferous forest and montane hardwood habitat on the project site. Although oak trees are not protected by federal or statewide regulations, they are recognized as a

significant resource in Placer County and are protected by the Placer County Tree Preservation Ordinance. Direct impacts to oak trees will eventually result through implementation of the proposed project, including the eventual removal of some trees. This impact is therefore considered ***potentially significant.***

Mitigation Measure

Implementation of the following mitigation measure will reduce the impact on oak trees to a level that is *less than significant:*

3.4.1-11. *The project applicant shall submit a tree survey map as part of the Specific Plan submittal of oak trees proposed to be removed or disturbed during project development. Within these impact areas, an inventory of the location, number and health of oaks (greater than or equal to 6" in diameter) shall be conducted by a certified arborist. An oak tree mitigation plan shall be prepared prior to approval of tentative maps or any ground disturbing activities and approved by the County for oaks with a dbh of 6 inches or greater that are not dead, dying or a public safety hazard, as determined by the certified arborist.*

Impact 3.4.1-12 Implementation of the proposed project could result in fill of jurisdictional waters of the U.S.

The project site supports approximately 32 acres of potential jurisdictional waters of the U.S., which includes a spring, a pond, and perennial and intermittent drainages. Thirty-one acres of the potential jurisdictional waters on the project site will not likely be affected by project implementation; these waters occur in areas designated for open space. However, one acre of potential jurisdictional waters occurs within the proposed development area. Jurisdictional waters of the U.S. are regulated by the Corps and CDFG. Additionally, these areas are protected in the Foresthill General Plan. Impacts to jurisdictional waters of the U.S. are considered ***potentially significant.***

Mitigation Measures

Implementation of the following measures will reduce impacts to jurisdictional waters to a *less than significant level:*

3.4.1-12a. *Potentially impacted jurisdictional waters of the U.S. shall be delineated according to Corps methodology. The map shall be submitted to the Corps for verification and the appropriate Section 404 permit shall be acquired prior to submittal of improvement plans. Section 401 Water Quality certification or waiver must also be acquired.*

3.4.1-12b. *Any jurisdictional waters that would be lost or disturbed shall be replaced or rehabilitated on a "no net loss" basis in accordance with the Corps' mitigation*

guidelines. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods agreeable to the Corps.

3.4.1-12c. *Prior to issuance of a grading permit, a Streambed Alteration Agreement shall be obtained from CDFG, pursuant to Section 1600 of the California Fish and Game Code, for each stream crossing and any other activities affecting the bed, bank, or associated riparian vegetation of the stream. If required, the project applicant shall coordinate with CDFG in developing appropriate mitigation, and shall abide by the conditions of any executed permits.*

Impact 3.4.1-13 Implementation of the proposed project could result in the removal and disturbance of riparian habitat.

Sparse riparian vegetation occurs around the margins of open water habitat and along the river/stream habitat on the project site. The majority of this habitat occurs in areas designated for open space. However, a small portion of riparian habitat may occur within the proposed development area (see Figure 3.4-3). Direct and indirect impacts to this habitat in the easterly portion of the project site could occur due to project implementation. Although riparian habitat does not receive protection from federal or state resource agencies, this habitat is recognized as a significant resource in the Foresthill General Plan. Riparian habitats are also of concern to the CDFG. Impacts to riparian habitat are therefore considered ***potentially significant.***

Mitigation Measure

Implementation of the following measures will reduce impacts on riparian habitat to a *less than significant level:*

3.4.1-13a. *As provided in Mitigation Measure 3.4.1-12c, prior to issuance of a grading permit, a Streambed Alteration Agreement shall be obtained from CDFG, pursuant to Section 1600 of the California Fish and Game Code, for each stream crossing and any other activities affecting the bed, bank, or associated riparian vegetation of a stream.*

3.4.1-13b. *Refer to Mitigation Measures 3.4.2-2f for additional mitigation related to riparian areas.*

Impact 3.4.1-14 Cumulative contribution of the proposed project to the loss of habitat and forage lands, habitat degradation due to encroaching urbanization, direct impacts to sensitive species, habitat fragmentation, and obstruction of movement corridors, and harassment of wildlife by humans and pets.

As proposed, the project, in conjunction with other future developments on the Foresthill Divide, would contribute to the loss of natural, undisturbed open space in the region, resulting in a decline of biological resources and species diversity. The encroachment of urbanized areas into natural, relatively undisturbed open space is a direct threat to wildlife species in Foresthill, and increased human use results in the degradation of natural undisturbed habitats. Road construction, site grading, and the construction of residential and recreational uses directly

removes native plant species, removes habitat for wildlife, and increases the fragmentation of open space in the region, effecting wildlife dispersal. Development of the Forest Ranch project, in conjunction with future projects, will result in the restriction of wildlife movement. These impacts are considered ***cumulative, significant and unavoidable.***

Mitigation Measure

No mitigation measures are available.

Impact 3.4.1-15 Development of the project site could destroy or alter unknown paleontological resources.

Development of areas of the project site that will not remain in open space will require grading, and portions of the site will require extensive grading, cut and fill. Although the site has been disturbed in the past (including mining activities), it is possible that unknown paleontological resources could be encountered during site grading and installation of underground utilities. Impacts on unknown paleontological resources are ***potentially significant.***

Mitigation Measure

Implementation of the following measure will reduce impacts on paleontological resources to a *less than significant level:*

3.4.1-15. *Prior to any ground-disturbing activities, a preconstruction paleontological resource impact assessment shall be conducted by a qualified professional paleontologist. The resource impact assessment shall be conducted in accordance with the Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines developed by the Society of Vertebrate Paleontology. If the assessment concludes that there is a high potential for disturbing significant fossils during project construction, a mitigation monitoring plan shall be prepared that includes monitoring by a qualified paleontologist to salvage any fossils uncovered, identification of the salvaged fossils, determination of their significance, and placement of curated fossil specimens into a permanent public museum collection (such as the California state repository, the University of California Museum of Paleontology at Berkeley).*

3.4.2 HYDROLOGY/WATER QUALITY

Setting

The analysis of this subject is based in part on data and project-relevant regulations and comments from the Foresthill Public Utility District, the State Water Resources Control Board, the Central Valley Regional Water Quality Control District's *Sacramento River/San Joaquin River Basins Water Quality Control Plan*, the Placer County Flood Control and Water Conservation District, the Stormwater Management Manual, the Placer County Land Development Manual, the existing Foresthill General Plan, the Draft FDCP, the 1997 Timber

Harvesting Plan approved for the project site, and information submitted by the project applicants.

A watershed is an area drained by a river or river system. It is an essential ecological unit, upon which the health of the overall landscape depends. Watersheds left undisturbed by road building, logging, construction, agriculture, and mining operations will serve the greatest ecological function by preventing mudflows, water contamination, flooding, and personal property loss, while greatly enhancing regional water quality.

The North and Middle Forks of the American River are the major hydrological features of the Foresthill Divide. Fresh water sources are relatively abundant on top of the Divide. Rivers cut steep canyons up to 1000 feet below the top of the Divide.

According to the Placer County General Plan Background Report, the Foresthill Divide is located within the North Fork American River and Middle Fork American River surface water drainage basins. The basins are separated by the ridge line of the Foresthill Divide, and are comprised of 11 smaller watersheds. The North and Middle Fork American River are major surface flows that define the area; their confluence is near Lake Clementine, in the westernmost portion of the Foresthill Divide. From the confluence, the American River feeds Folsom Lake and ultimately the Sacramento River. The Foresthill Divide includes numerous important tributaries to the American River, many of which are spring-fed.

According to the General Plan Background Report, the North Fork American River has its headwaters in the Granite Chief area, and has a relatively narrow drainage basin above Folsom Lake. Federal legislation has designated the North Fork above the Auburn State Recreation Area as a National Wild and Scenic River, precluding motorized river access or activities on the river, but permitting access on foot.

The Middle Fork American River begins in the Picayune Valley and the river forms part of the southern boundary of Placer County. According to the Background Report, the Middle Fork American River (near Foresthill) has a 20-year average flow of 66 cubic feet per second (cfs).

Placer County contains approximately 700 miles of rivers and 97,000 acres of lakes (General Plan Background Report). Two of the eight major reservoirs in the county are located in the Foresthill Divide area. Lake Clementine is fed by the North Fork American River, has a 12,800 acre-foot storage capacity and is operated by the U.S. Army Corps of Engineers. It is used for power production and recreational purposes. Sugar Pine Reservoir is fed by North Shirttail Creek, Pagge Creek and Forbes Creek. The reservoir has a 7,000 acre-foot capacity and supplies a maximum 3,000 acre feet annually to the Foresthill Public Utility District (P.U.D.) (Kurt Reed, pers. comm.). It is owned by the U.S. Bureau of Land Management, and is operated by the Foresthill P.U.D.

Average rainfall in the Foresthill area varies from 50 to 60 inches per year, with the wettest season occurring generally between October and April (see Table 3.4-2). Varying amounts of that wet-season precipitation occur as snowfall.

The existing drainages within the project site accept runoff from approximately 2,615 onsite acres, and approximately 800 acres offsite (see Figure 3.4-4c) which drain through project site watercourses. The net total area to be developed, assuming runoff coefficients of 0.20 for rural density and low density single family residential, 0.30 for 2 and 3 unit per acre single family residential, 0.35 for medium density residential, and .60 for resort and commercial development, is the net runoff increase equivalent of approximately 200 acres of existing forested land at a runoff coefficient of .15. This represents an estimated 6 percent increase in total runoff to be accommodated at project buildout.

Table 3.4-2
Average Rainfall, Foresthill Ranger Station
(Elevation 3,011)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
mm	246.0	205.5	204.8	102.8	49.6	16.2	3.0	5.2	17.5	66.0	164.8	212.6	1294.9
inches	9.7	8.1	8.1	4.0	2.0	0.6	0.1	0.2	0.7	2.6	6.5	8.4	51.0

Source: Derived from NCDC Cooperative Stations. Fifty complete years between 1937 and 1995.

The American River Watershed Group is an affiliation of interested groups and private landowners, as well as local, state, and federal agencies committed to enhancing and maintaining the health of the American River watershed. The Watershed Group has undertaken a Coordinated Resource Management Plan (CRMP) for the watershed. The CRMP focuses on reduction of the fuel load and improvement of the forest ecosystem. The Watershed Group works in cooperation with the Foresthill Fire Protection District, Sierra Planning Organization, Tahoe and El Dorado National Forests, and a variety of Federal and County agencies.

Watercourses

The project site contains numerous watercourses. Detailed information regarding these watercourses is paraphrased from the Timber Harvesting Plan (No. 2-97-070-PLA(3)) prepared for the project site in 1997 and approved by the California Department of Forestry and Fire Protection. It reflects site conditions at the time of the survey, prior to timber harvesting.

The watercourses traversing the project site include both perennial and intermittent streams and runoff swales. The streambeds generally vary in width from one to fifteen feet, and in depth from one-half foot to one and one-half feet. Stream bottoms are largely silt, sands, gravels or cobble, reflecting the impacts of past mining activity and erosion resulting from forestry practices.

Figure 3.3-4, Drainage Exhibit, illustrates some of the more important watercourses draining the project site. The project site is principally located within the Brushy Canyon watershed, which drains to Shirttail Creek, a primary tributary to the North Fork of the American River. The southern portions of the project site drain to the Middle Fork of the American River. Several springs are located within the project area. The locations of these springs are depicted on

Figures 3.4-4a and 3.4-4b. Figure 3.4-4c, Offsite Drainage, depicts area drainage through the project site.

The primary onsite watercourses are defined in the Timber Harvest Plan as Class II with Class III and swales providing runoff. The subject property contains several water lines and one ditch depicted as a Class IV watercourse. The numbers in the descriptions correspond to Figures 3.4-4a and 3.4-4b. Definitions of the watercourse classifications are provided in Appendix D of this EIR.

Class II, Spring, #56. This spring consists of a metal tank with a water line running to a residence that is directly south of the spring. The spring is currently used for irrigation.

Class II, Spring, #57. This spring is located above Bath House Road. The spring provides water to a surface water line that ends at a small pond. This water line runs south off the subject property and then back onto the subject property at the southern boundary.

Groundwater

The project area's groundwater resource is limited; groundwater supplies to individual dwellings or facilities are provided from springs or controlled by the Foresthill Public Utility District. The relatively thin soil mantle coverage, and the availability of surface water, limit dependence upon groundwater.

Water Quality

Water quality trend studies have never been conducted for the American River basin; however, waters above Folsom Lake are typically of good quality and are suitable for all beneficial uses, as specified by the California Department of Health Services. Increased urbanization and recreation on Folsom Lake have resulted in the degradation of water quality downstream from Folsom Dam. The project site remains above these affected areas, and the Foresthill Divide is the source for many of the surface flow origins. The General Plan Background Report describes conditions as follows:

> A review of available data from monitoring locations within the American River basin above Folsom Dam indicates that dissolved oxygen and temperature levels have all been above the specified water quality limit. All measured specific conductance values are below suggested limits. Acidity levels outside the water quality objective range have been observed on the Middle Fork of the American River and are probably attributable to the photosynthetic activity of aquatic plants that absorb dissolved carbon dioxide during daylight. The specified concentration for nitrate has not been exceeded; however, the concentrations of phosphorus have been exceeded at all observation sites in the upper American River basin but these observations infrequently approached the suggested limits.

Overall, water quality in the Foresthill Divide area is considered to be of excellent quality.

Placer County General Plan Policies

Public Facilities and Services

4.E.1. The County shall encourage the use of natural stormwater drainage systems to preserve and enhance natural features.

4.E.5. The County shall continue to implement and enforce its Grading Ordinance and Flood Damage Prevention Ordinance.

4.E.9. The County shall encourage good soil conservation practices in agricultural and urban areas and carefully examine the impact of proposed urban developments with regard to drainage courses.

4.E.10. The County shall strive to improve the quality of runoff from urban and suburban development through use of appropriate and feasible mitigation measures including, but not limited to, artificial wetlands, grassy swales, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, and other best management practices (BMPs).

4.E.11. The County shall require new development to adequately mitigate increases in stormwater peak flows and/or volume. Mitigation measures should take into consideration impacts on adjoining lands in the unincorporated area and on properties in jurisdictions within and immediately adjacent to Placer County.

4.E.12. The County shall encourage project designs that minimize drainage concentrations and impervious coverage and maintain, to the extent feasible, natural site drainage conditions.

4.E.13. The County shall require that new development conforms with the applicable programs, policies, recommendations, and plans of the placer County Flood Control and Water Conservation District.

4.E.14. The County shall require projects that have significant impacts on the quantity and quality of surface water runoff to allocate land as necessary for the purpose of detaining post-project flows and/or for the incorporation of mitigation measures for water quality impacts related to urban runoff.

4.E.15. The County shall identify and coordinate mitigation measures with responsible agencies for the control of storm sewers, monitoring of discharges, and implementation of measures to control pollutant loads in urban storm water runoff (e.g., California Regional Water Quality Control Board, Placer County Division of Environmental Health, Placer County Department of Public Works, Placer County Flood Control and Water Conservation District).

Flood Protection

4.F.1. The County shall require that arterial roadways and expressways, residences, commercial and industrial uses and emergency facilities be protected, at a minimum, from a 100-year storm event.

4.F.4. The County shall require evaluation of potential flood hazards prior to approval of development projects. The County shall require proponents of new development to submit accurate topographic and flow characteristics information and depiction of the 100-year floodplain boundaries under fully-developed, unmitigated runoff conditions.

Foresthill General Plan Goals and Policies

Safety

Goal 2: Protect the lives and property of the citizens of the Foresthill area from unacceptable risk resulting from flood hazards.

3. Maintain natural conditions within the 100-year flood plain of all streams.

Foresthill Divide Community Plan

Community Development Element

3.D.15-3. Projects that result in significant impacts on the quantity and quality of surface water runoff shall be required to allocate land as necessary for the purpose of detaining post-project flows and/or for the incorporation of mitigation measures for water quality impacts related to urban runoff.

3.D.15-4. The County shall identify and coordinate mitigation measures with responsible agencies for the control of storm drains, monitoring of discharges, and implementation of measures to control pollutant loads in urban storm water runoff (e.g., California Regional Water Quality Control Board, Placer County Environmental Health Services, Placer County Department of Public Works, Placer County Flood Control and Water Conservation District).

3.D.16-1. The County shall require that arterial roadways, residences, commercial and industrial uses and emergency facilities be protected, at a minimum, from a 100-year storm event.

3.D.16-2. The County shall require evaluation of potential flood hazards prior to approval of development projects. The County shall require proponents of new development to submit accurate topographic and flow characteristics under fully-developed, unmitigated runoff conditions

Regulatory Setting

Water Quality. Development in the plan area is subject to various federal, state, and local regulations and permits. The Placer County Flood Control and Water Conservation District, California Department of Water Resources, and Central Valley Regional Water Quality Control Board are the primary agencies responsible for the protection of watersheds, floodplains, and water quality. The Placer County Department of Environmental Health is the primary agency responsible for establishing design standards and permitting septic tanks and wells.

The National Pollutant Discharge Elimination System Permit System (NPDES) is the primary national program that regulates point-source and non-point source discharges to surface waters. The Clean Water Act (CWA) was amended in 1987 to require NPDES permits for municipal and industrial stormwater discharges.

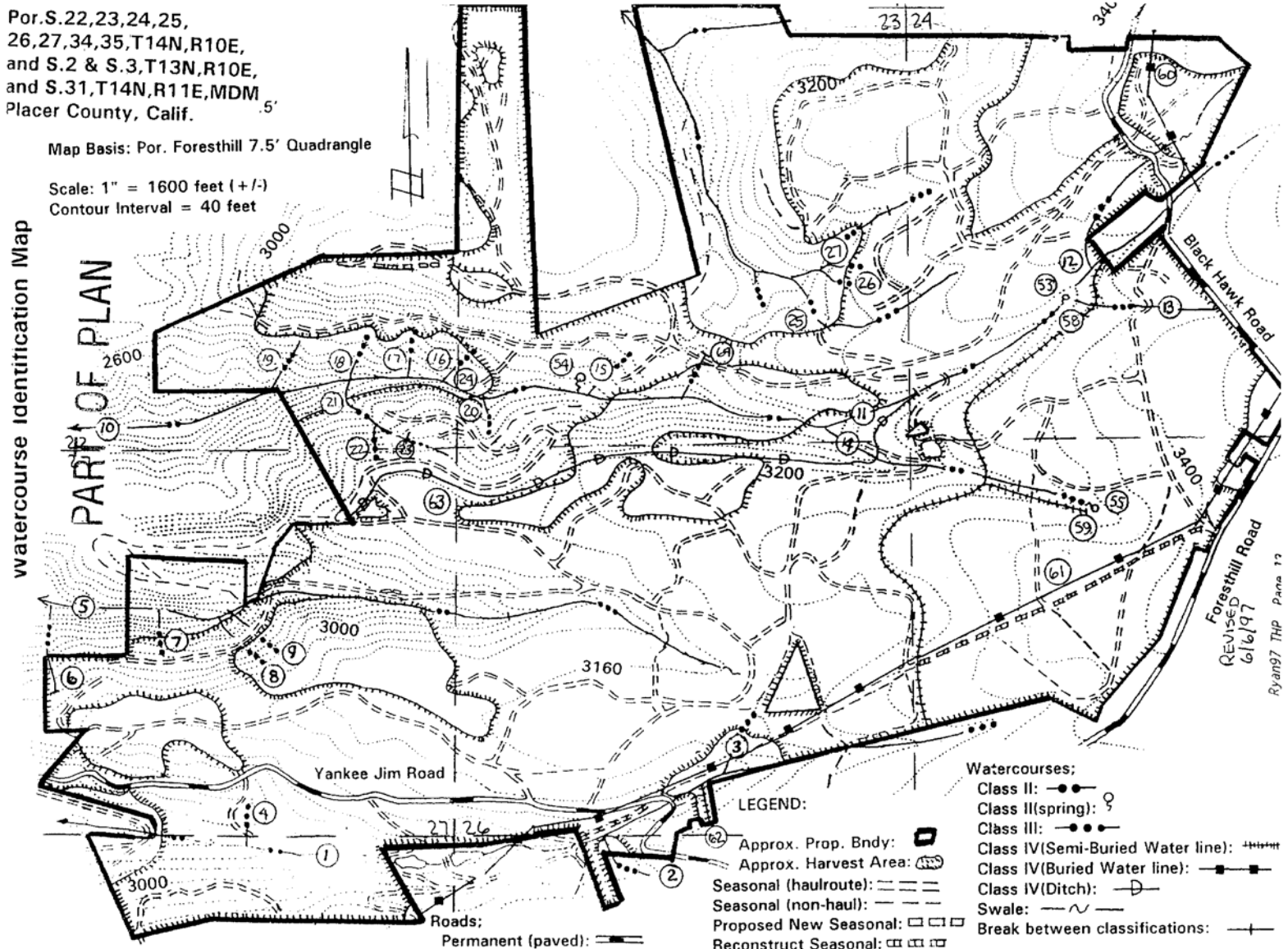
The addition of what has been termed Phase 1 municipal stormwater discharges to the National Pollutant Discharge Elimination System (NPDES) regulations, the primary federal water quality permit system administered by the federal Environmental Protection Agency (EPA), was completed on October 31, 1990. Among other things, these Phase 1 regulations required medium and large municipalities with populations of 100,000 or more to obtain a permit. On November 16, 1990, the final rule and regulations for the NPDES Permit Application for Storm Water Discharges [40 Code of Federal Regulations (CFR) 122-124] were published in the Federal Register.

The Phase 1 regulations addressed only a portion of the stormwater discharges which the EPA was required to regulate as a result of the 1987 CWA amendments. To begin to address the other discharges covered by the 1987 amendments, the EPA undertook to create what has come to be called the Phase II NPDES program. The Phase II Final Rule, published in the Federal Register (FR) on December 8, 1999, requires NPDES permit coverage for stormwater discharges from:

- Certain regulated Municipal Separate Storm Sewer Systems (MS4s) and
- Construction activity disturbing between 1 and 5 acres of land (i.e., small construction activities)

The CWA amendments mandating NPDES permits for municipal stormwater discharges require controls to reduce (to the maximum extent practicable) the discharge of pollutants, including management practices, control techniques and systems, design and engineering methods, and other provisions that deem appropriate for control of these pollutants.

The Environmental Protection Agency (EPA) has delegated permitting authority to the State Water Resources Control Board (SWRCB). The SWRCB issues both general and individual permits. A new EPA general permit became effective on July 1, 2003 that authorized stormwater discharges from large and small construction activities that result in a total land disturbance of equal to or greater than one acre and less than five acres. The appropriate RWQCB enforces the general permit. For Placer County, the SWRCB delegates enforcement authority to the Central Valley Regional Water Quality Control Board (RWQCB). The SWRCB adopted a general permit for Phase II on February 4, 2003. On March 10, 2003, Placer County submitted a Notice of Intent to Comply (NOI), fee and the County of Placer Stormwater



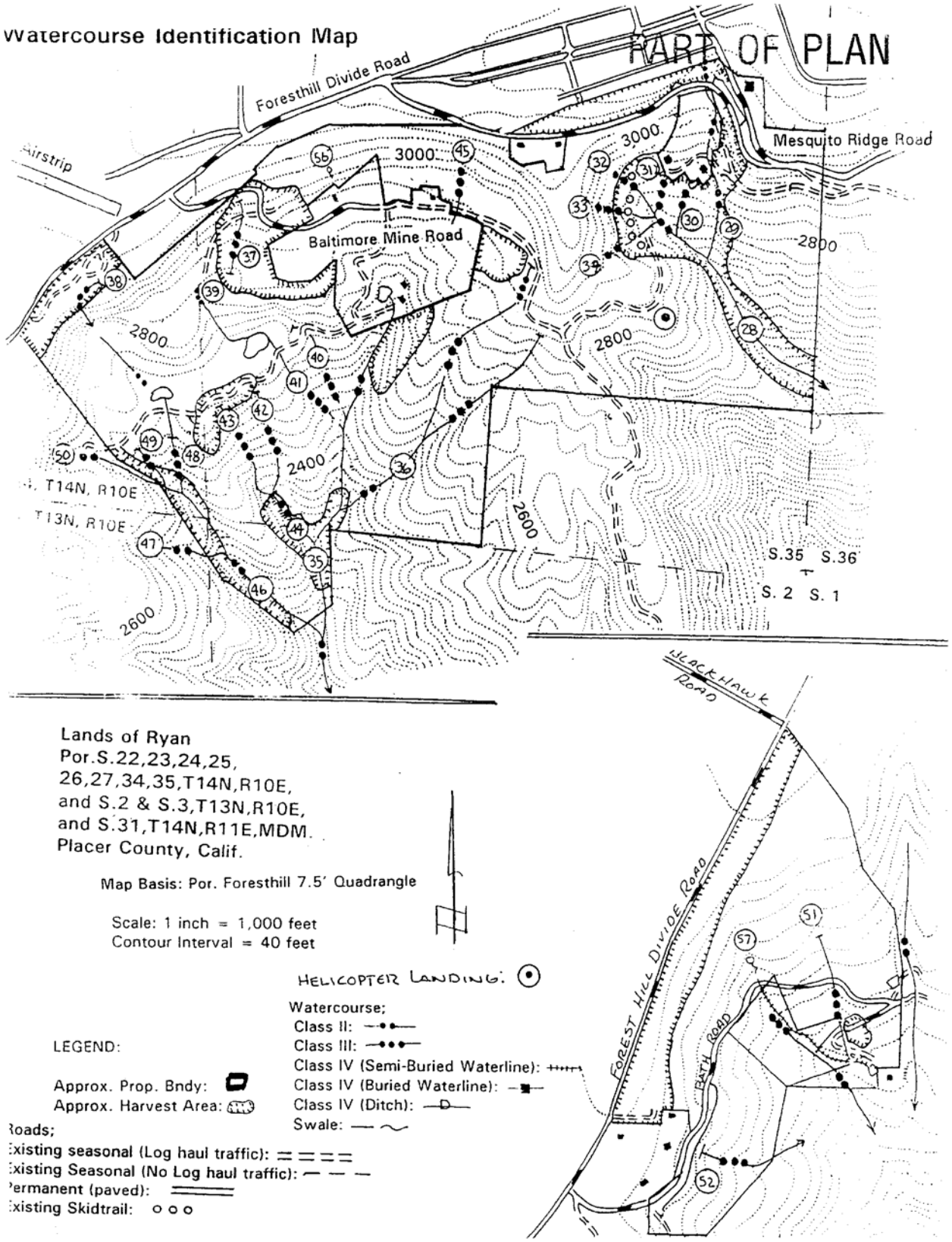
Source: Department of Forestry and Fire Protection, Timber Harvesting Plan No. 2-97-070-PLA(3)

Quad Knopf

FOREST RANCH EIR

Watercourses

Figure 3.4-4a



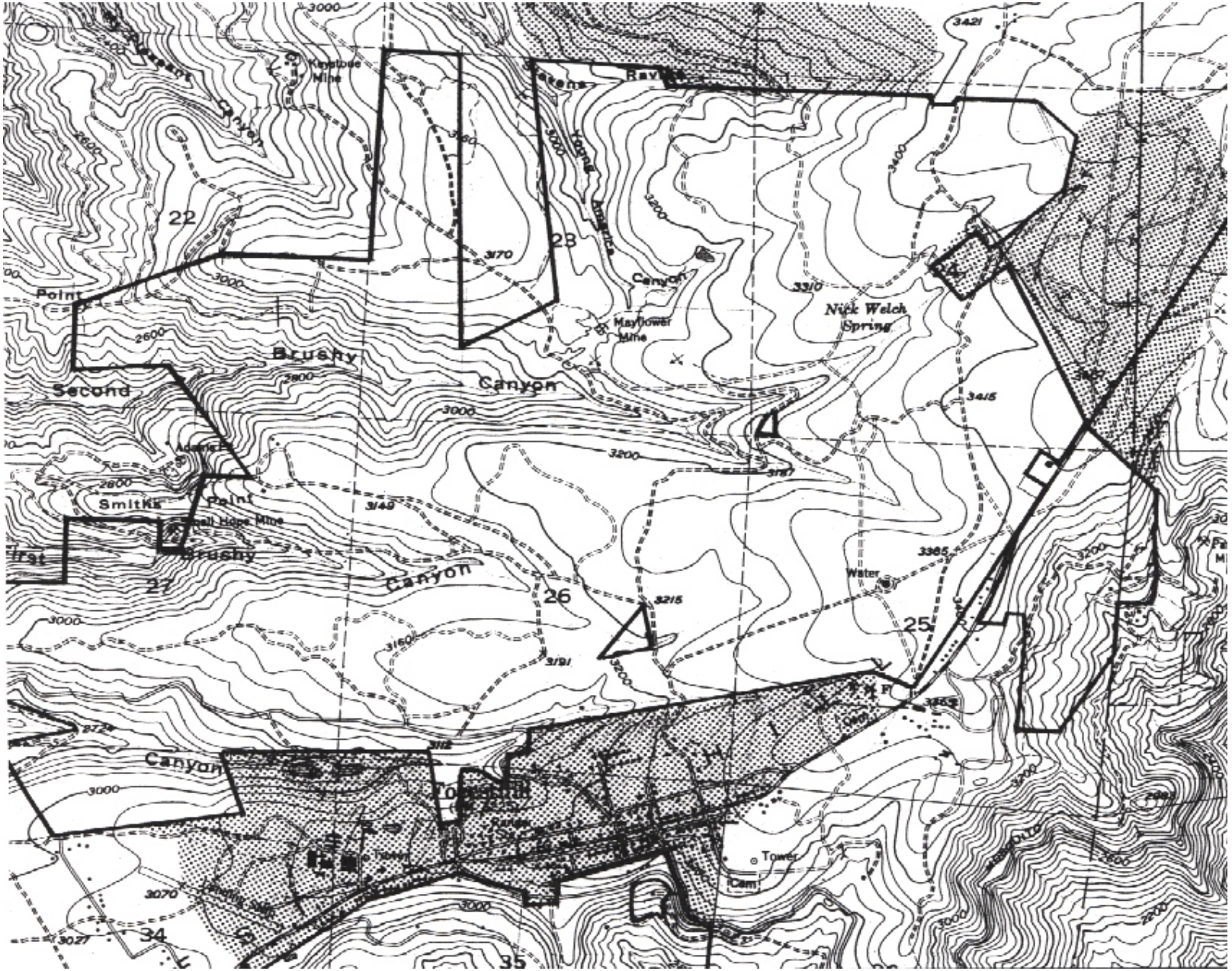
Source: Department of Forestry and Fire Protection, Timber Harvesting Plan No. 2-97-070-PLA(3)

Quad Knopf

FOREST RANCH EIR

Watercourses

Figure 3.4-4b



NOTE: Shaded Area Drains To or Through Project Area.

N

Not to Scale

Source: KD Anderson Transportation Engineers, Quad Knopf, Inc.

Quad Knopf

Offsite Drainage

Figure 3.4-4c

Job No.: 01157

Management Plan 2003-2008 (required by the permit). Development in the Foresthill area, including the Forest Ranch site, will be subject to the requirements of the Management Plan once it has been approved.

The EPA issued a Construction General Permit effective July 1, 2003 authorizing stormwater discharges from large and small construction activities that result in total land disturbance equal to or greater than 1 acre. The general construction permit authorizes the discharge of stormwater and prohibits the discharge of materials other than stormwater and all discharges that contain a hazardous substance in excess of reportable quantities established in 40 CFR 117.3 or 40 CFR 302.4, unless a separate NPDES permit has been issued to regulate those discharges. A general permit would require that a project applicant control discharges associated with construction activity by:

- eliminating or reducing non-stormwater discharges to stormwater systems and other waters of the nation;
- developing and implementing a stormwater pollution prevention plan (SWPPP); and
- performing inspections of stormwater control structures and pollution prevention measures.

A number of studies have been conducted over the past two decades regarding the pollutant removal effectiveness of urban stormwater Best Management Practices (BMPs). For example, wetland BMPs such as shallow marshes, extended detention wetlands, and ponded wetlands have demonstrated median removal rates of 77 percent for bacteria, 90 percent for hydrocarbons, including oil and grease, and 69 percent for cadmium. Ponds have demonstrated median removal rates of 57 percent and 73 percent for copper and lead, respectively. Filters have been shown to be 81 percent effective in removing hydrocarbons, including oil and grease, 80 percent effective in removing zinc, 87 percent effective in removing total suspended solids (TSS), and 66 percent effective in removing organic carbon, based on the median rates of a number of reported studies. Drainage swales have demonstrated median removal efficiencies of 81 percent for TSS, 67 percent for organic carbon, and 71 percent for zinc (Schueler 1997).

Grading. Placer County has adopted a "Grading, Erosion and Sediment Control Ordinance" (Article 15.48 of the County Code) to address grading and erosion control concerns. Excerpts pertinent to the proposed project are reprinted below:

> *§15.48.050 Water obstruction.*
> No person shall do or permit to be done any grading which may obstruct, impede or interfere with the natural flow of stormwaters, in such manner as to cause flooding where it would not otherwise occur, aggravate any existing flooding condition or cause accelerated erosion. This section applies whether such waters are unconfined upon the surface of the land or confined within land depressions or natural drainage ways, unimproved channels or watercourses, or improved ditches, channels or conduits. (Ord. 5056-B (part), 2000)
>
> *§15.48.570 Drainage--General.*
> Any drainage structure(s) or device(s) carrying surface water runoff required by

this article shall be designed and constructed in accordance with standards herein, the current Placer County flood control and water conservation district stormwater management manual and criteria authorized by the director of public works. (Ord. 5056-B (part), 2000)

§15.48.580 Drainage discharge requirements.
All drainage facilities shall be designed and engineered to carry surface and subsurface waters to the nearest adequate street, storm drain, natural watercourse, or other juncture, and shall be subject to the approval of the director of public works. (Ord. 5056-B (part), 2000)

§15.48.590 Drainage--Water accumulation.
All areas shall be graded and drained so that drainage will not cause erosion or endanger the stability of any cut or fill slope or any building or structure. (Ord. 5056-B (part), 2000)

§15.48.600 Drainage protection of adjoining property.
When surface drainage is discharged onto any adjoining property, it shall be discharged in such a manner that it will not cause erosion or endanger any cut or fill slope or any building or structure. (Ord. 5056-B (part), 2000)

§15.48.610 Terrace drainage.
Terraces at least eight feet in width shall be established at not more than twenty-five (25) feet in height intervals for all cut and fill slopes exceeding thirty (30) feet in height. Where only one terrace is required, it shall be at approximately mid-height. Suitable access shall be provided to permit proper cleaning and maintenance of terraces and terrace drains. Swales or ditches on terraces shall have a minimum depth of one foot, a minimum longitudinal grade of four percent, a maximum longitudinal grade of twelve (12) percent. Down-drains or drainage outlets shall be provided at approximately three hundred (300) foot intervals along the drainage terrace. Down-drains and drainage outlets shall be of approved materials and of adequate capacity to convey the intercepted waters to the point of disposal. If the drainage discharges onto natural ground, adequate erosion protection shall be provided. (Ord. 5056-B (part), 2000)

§15.48.630 Erosion and sediment control.
The following shall apply to the control of erosion and sediment from grading operations:

A. Grading plans shall be designed with long-term erosion and sediment control as a primary consideration.

B. Grading operations during the rainy season shall provide erosion and sediment control measures except upon a clear demonstration, to the satisfaction of the director of public works, that at no stage of the work will there be any substantial risk of increased sediment discharge from the

site.

C. Should grading be permitted during the rainy season, the smallest practicable area of erodible land shall be exposed at any one time during grading operations and the time of exposure shall be minimized.

D. Natural features, including vegetation, terrain, watercourses and similar resources shall be preserved wherever possible. Limits of grading shall be clearly defined and marked to prevent damage by construction equipment.

E. Permanent vegetation and structures for erosion and sediment control shall be installed as soon as possible.

F. Adequate provision shall be made for long-term maintenance of permanent erosion and sediment control structures and vegetation.

G. No topsoil shall be removed from the site unless otherwise directed or approved by the director of public works. Topsoil overburden shall be stockpiled and redistributed where appropriate within the graded area after rough grading to provide a suitable base for seeding and planting. Runoff from the stockpiled area shall be controlled to prevent erosion and resultant sedimentation of receiving water.

H. Runoff shall not be discharged from the site in quantities or at velocities substantially above those, which occurred before grading except into drainage facilities, whose design has been specifically approved by the director of public works.

The permitee shall take reasonable precautions to ensure that vehicles do not track or spill earth materials into public streets and shall immediately remove such materials if this occurs. (Ord. 5056-B (part), 2000)

§15.48.670 Vehicular ways--Drainage.
Vehicular ways shall be graded and drained in such a manner that will not allow erosion or endanger the stability of any adjacent slope. Surface discharge onto adjoining property shall be controlled in such a manner that it does not cause erosion or endanger existing improvements. Bridges and culverts installed in watercourses may be reviewed by the Placer County flood control and water conservation district and must be approved by the public works director, and any other required permitting agency. (Ord. 5056-B (part), 2000)

Flood Hazards. The Placer County Flood Control and Water Conservation District was established to protect lives and property from the effects of flooding through comprehensive, coordinated flood prevention planning. Standards have been developed to evaluate flood risk and flood control measures such as the requirement for new flood control infrastructure for new development to mitigate resulting impacts. The District also maintains pertinent standards

addressing drainage and flooding. The following is excerpted from the District's Stormwater Management Manual:

> Section VI - Drainage Systems, Item 2. Design Storms – All new development shall be planned and designed so that no damages occur to structures or improvements during the 100-year event and no inundation on private property occurs during the 10-year event.
>
> a. Local Drainage – The 10-year event is the minimum design storm for new developments in all drainages and all dedicated drainage facilities will be sized for this event.
>
> The development plan will also identify the effects of the 100-year event and provision will be made in the plan to prevent loss of life and damages to property during a 100-year event.
>
> b. Regional Drainage – Regional drainage facilities are those identified as such in watershed plans, or have drainage areas greater than 200 acres.
>
> Regional drainage systems will be planned and designed for a 100-year event except where the cost of the system is clearly unjustifiable economically. Variances from the design frequency will be approved by the Flood Control District.
>
> Designs of major flood control facilities will consider the effects of events which are lesser in magnitude as well as greater than the design event.
>
> Section VI – Drainage Systems, Table 6-1 Allowable Street Encroachments
>
> 10-year event
> Local Street Traveled way remains clear and does not convey runoff.
> Collector Traveled way remains clear and does not convey runoff.
>
> 100-year event
> Local Street Maintain HGL. [hydraulic grade line] minimum of 1 foot below building pad.
> Collector Flow is contained within the right of way. The center 12 feet of roadway shall remain clear.

Zone "A" (100-year flood zones) as depicted on flood hazard maps prepared by the Federal Emergency Management Agency (FEMA) are commonly used as a threshold of significance for flooding impacts. The location of proposed structures within a flood zone and compliance with the County's Flood Damage Prevention Regulations (Section 15.52 Placer County Code) are used to determine the significance of flooding impacts.

Wastewater. The primary regulations governing implementation of wastewater reclamation projects are contained in the California Code of Regulations (CCR). Implementation of these regulations is the responsibility of both the California Department of Health Services (DHS) and the California Regional Water Quality Control Board (RWQCB).

The regulation governing the treatment and disposal of reclaimed wastewater on land is contained within Title 22, Division 4 CCR. Included in these regulations are requirements for minimum wastewater treatment levels and system reliability. For landscape irrigation on golf courses, parks, playgrounds, school yards or other areas where the public has similar exposure, the wastewater must be adequately disinfected, oxidized, coagulated, clarified and filtered pursuant to Title 22, CCR Section 60313(b). Definitions of these treatment processes are given in Title 22, CCR Section 60301.

In addition to prescribed treatment levels, Title 22 CCR requires reliability features in the treatment process for facilities that reclaim wastewater for surface irrigation. These requirements are contained in Title 22, CCR Sections 60341 through 60355. Reliability features can include multiple unit process components, short term or long term storage, or diversion to other less demanding uses. The method used for reliability aspects of the treatment process must be clearly indicated in an Engineering Report submitted to DHS and RWQCB prior to operation of the wastewater system.

California DHS has proposed amendments to Title 22 CCR that will expand the allowable uses of reclaimed effluent within the state. For example, the use of "disinfected tertiary recycled water" within the context of the amended Title 22 CCR is now approved for residential and commercial toilet flushing, structural fire fighting, commercial laundries, and decorative fountains.

Installation of individual wastewater disposal systems are governed by Placer County's "Ordinance Governing Individual On-Site Sewage Disposal Systems;" however, the Regional Water Quality Control Board (in a letter dated October 2, 2001 in response to the Notice of Preparation for the Foresthill Divide Community Plan EIR) has indicated that this Ordinance has inadequate design criteria for on-site domestic waste disposal systems. In subsequent correspondence from Environmental Health Services to the Regional Board (August 12, 2002) the County clarified that they are only approving applications that protect the public health, safety, and welfare in accordance with the 1972 Regional Board's Guidelines. The County believes, with the support of County Counsel, that the current ordinance is in conformance with the 1972 Guidelines. The Regional Board's Guidelines are reprinted in Appendix F of this EIR.

The Subdivision Map Act, Government Code Section 66767.6, provides that the governing body of a local agency shall determine whether discharge of waste from a proposed subdivision into an existing community sewer system would cause a violation of existing Board requirements. If the proposed waste discharge would cause or add to such violations, the proposed subdivision can be denied.

The construction and operation of community wastewater facilities will be subject to Waste Discharge Requirements which will be imposed by the Central Valley Regional Water Quality

Control Board. Construction of project elements exceeding one acre of ground disturbance will require compliance with NPDES requirements in place at the time of construction to protect against stream pollution and siltation.

Impacts and Mitigation Measures

Impact Evaluation Criteria

Based on Appendix G of the State CEQA Guidelines, the proposed project would normally be considered to have a significant adverse impact on hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements.

- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

- Otherwise substantially degrade water quality.

- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

- Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

- Expose people or structures to a significant risk or loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
- Require or result in the construction of new storm drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

- Be inconsistent with adopted standards (i.e. Placer County Stormwater Management Manual and the Placer County Land Development Manual).

The project would be considered to have a significant impacts on soils and/or surface water quality if it would result in substantial soil erosion or the loss of topsoil, or the loss of a unique geologic feature.

Water quality impacts can be associated with both surface and groundwater. If the project is proximate to or disturbs surface water courses, the impact should be viewed as potentially significant. The level of significance of groundwater impacts can be determined by the potential to encounter unsafe domestic water supplies due to known inadequate or contaminated sources, or for the project itself to adversely affect groundwater quality. If project characteristics could potentially contribute to groundwater contamination, the impact should be viewed as potentially significant. Inability to meet permit requirements described below should also be considered a significant impact.

Impact 3.4.2-1 Water quality standards/waste discharge requirements violation: Potential degradation of surface and groundwater quality due to installation and operation of community and individual wastewater treatment and disposal systems.

The proposed project has the potential to violate water quality standards and to degrade surface water and groundwater (springs) quality. Failure to properly locate and design individual wastewater treatment systems can degrade both surface waters and groundwater through offsite transmission of effluent. Inadequate sizing, design or operation of community facilities can result in similar impacts. Operation of wastewater disposal facilities at the proposed recreational vehicle park could threaten water quality through overload and upset conditions. All of these impacts can occur, despite overall project design that maintains low residential densities in areas where onsite treatment and disposal will occur and which recycles and reuses community wastewater treatment facility effluent. These water quality impacts are ***potentially significant.***

Mitigation Measures

Implementation of the following measures will reduce water quality impacts related to wastewater treatment and disposal to a *less than significant level:*

3.4.2-1a. *All onsite wastewater treatment and disposal facilities (whether septic tank/leachfield or engineered alternative systems) proposed to be installed on individual lots shall comply with Placer County's Ordinance Governing Individual On-Site Sewage Disposal Systems, including compliance with the minimum locational and operational criteria described therein.*

3.4.2-1b. *Prior to approval of tentative maps or improvement plans (whichever comes first) involving lots proposed for onsite wastewater disposal systems, a site evaluation shall be performed for each proposed lot in accordance with Placer County's Ordinance Governing Individual On-Site Sewage Disposal Systems. Proposed lots shall contain sufficient area to ensure compliance with Placer County and Regional Water Quality Control Board standards and criteria for treatment and disposal facilities, including sufficient replacement area in the event of system failure. On-site sewage treatment and disposal will only be allowed on parcels where all current regulations can be met and where parcels have the area, soils, and other*

characteristics that permit such disposal facilities without threatening surface or groundwater quality or posing any other health hazards.

3.4.2-1c. *The Specific Plan shall clearly show the location of all watercourses and existing springs. No onsite wastewater disposal system or replacement area shall be located within 300 feet of such features.*

3.4.2-1d. *A preliminary design of all proposed community wastewater treatment and disposal facilities shall be prepared and provided to Placer County prior to consideration of the Specific Plan. Tentative maps shall not be approved for the project unless the proposed facilities are deemed by the regulatory agencies to be adequate to prevent potential water quality degradation from facilities operation at buildout of the proposed project. Subsequent environmental analysis of proposed facilities shall be undertaken, to evaluate the impact of any proposed treatment and disposal facilities.*

3.4.2-1e. *The proposed recreational vehicle park shall be connected to the proposed community wastewater treatment and disposal facilities.*

Impact 3.4.2-2 Water quality degradation due to erosion, sedimentation and urban runoff due to implementation of the proposed project.

Project construction and implementation will involve grading, excavation and potential cut and fill activity. Ground disturbance associated with these activities has the potential to cause erosion of exposed surfaces during rainfall events. Runoff during rainfall events has the potential to cause sedimentation of onsite and offsite watercourses. Urban runoff from roadways, driveways and parking lots may carry petroleum-based contaminants to waterways. Operation of a proposed golf course may have the potential to generate runoff containing pesticide, herbicide and fertilizer residues. These activities pose a ***potentially significant impact*** to water quality.

Mitigation Measures

Implementation of the following measures will reduce water quality impacts related to wastewater treatment and disposal to a *less than significant level:*

3.4.2-2a. *Refer to Mitigation Measure 3.4.1-2 related to the requirements of a grading plan.*

3.4.2-2b. *Best Management Practices (BMPs) shall be applied during construction to minimize erosion and sedimentation. An erosion control plan shall be submitted prior to ground disturbing activities that reduces erosion and water quality degradation. Environmental review for subsequent development shall identify appropriate BMP's for site specific conditions. BMP's selected shall be in accordance with the California Stormwater Quality Association "Stormwater Best Management Practice Handbook," or other appropriate criteria as determined by the Design Review Committee.*

The erosion control plan shall indicate that proper control of erosion, sedimentation, siltation and other pollutants will be implemented per NPDES permit requirements and County standards. The plan shall address storm drainage during construction and propose BMP's to reduce erosion and water quality degradation. All drainage facilities shall be constructed to Placer County specifications. The plan shall indicate whether grading will occur in the winter months. If grading is proposed for the winter months, mechanisms to avoid sedimentation of creeks and damage to riparian habitat shall be identified. The plan shall also specify restoration measures for graded areas including but not limited to landscaping, revegetation, the use of rice straw or other weed free vegetative material for erosion control measures.

Drainage facilities shall be protected as necessary to prevent erosion of the onsite soils immediately following grading activities. In addition, cut slopes and drainage ways within native material shall be protected from direct exposure to water runoff immediately following grading activities. The design for collected run-off shall dissipate the energy. Cut and fill embankment slopes shall be protected from sheet, rill, and gully erosion.

3.4.2-2c. *Design of the project shall ensure that runoff is collected and conveyed into an appropriate collection system designed for the project site to receive the runoff, minimize erosion, and convey the runoff to storm water quality treatment facilities (BMP's) and ultimately off-site. Points of concentrated runoff discharge shall be protected with energy dissipating devices as deemed appropriate. All drainage system components shall be designed in accordance with the Placer County Flood Control and Water Conservation District Storm Water Management Manual and the Placer County Land Development Manual. Environmental review for subsequent development shall identify appropriate BMP's for site specific conditions. BMP's selected shall be in accordance with the California Stormwater Quality Association "Stormwater Best Management Practice Handbook," or other appropriate criteria as determined by the Development Review Committee.*

3.4.2-2d. *A requirement of recordation of final subdivision maps or issuance of permits for construction pursuant to an approved conditional use permit or minor use permit shall be the preparation of a plan for use of BMPs to control long-term water quality degradation from urban runoff. Prior to any project development said plan shall obtain the approval of Placer County.*

The BMP Plan shall indicate that proper control of pollutants will be implemented per NPDES permit requirements and County standards. The plan for use of BMPs shall also include specific measures for parking lot or roadway improvement projects to include a parking lot sweeping program and periodic storm drain inlet clearing. Parking lot sweeping shall occur on a monthly basis, and storm drain inlet clearing shall occur semi-annually. The plan shall also include the installation of structural BMP's in the proposed parking lots for removing pollutants of concerns from the runoff in these areas. The project proponent shall develop and present to Placer County a strategy to ensure the long-term implementation of the plan. Environmental

review for subsequent development shall identify appropriate BMP's for site specific conditions. BMP's selected shall be in accordance with the California Stormwater Quality Association "Stormwater Best Management Practice Handbook," or other appropriate criteria as determined by the Design Review Committee.

3.4.2-2e. *Project design that minimizes drainage concentrations and impervious coverage and maintains natural site drainage conditions, to the extent feasible, shall be incorporated in future project designs.*

3.4.2-2f. *The Specific Plan shall specify sensitive habitat buffers that shall be measured as follows: 100 feet from the centerline of perennial streams, 50 feet from centerline of intermittent streams, and 50 feet from the edge of sensitive habitats to be protected. Some exceptions may be made if reasonable use of the property would otherwise be denied, the location is necessary to avoid or mitigate hazards to the public, the location is necessary for repair or construction of infrastructure where there is no feasible alternative. If encroachment into a riparian area is proposed, the following criteria shall be implemented in descending order of desirability:*

- *Avoid the disturbance of riparian vegetation;*
- *Replace riparian vegetation (on-site, in-kind);*
- *Restore another section of creek (in-kind); and/or*
- *Pay a mitigation fee for restoration elsewhere in the Plan area.*

3.4.2-2g. *Subsequent applications for Tentative Subdivision maps shall identify the location of protected creek corridors and creek setback areas through the use of easements or dedications. These areas shall be designated as open space.*

3.4.2-2h. *Design, construction, and maintenance techniques shall ensure development near a creek will not cause or worsen natural hazards (such as erosion, sedimentation, flooding, or pollution) and will include erosion and sediment control practices such as: 1) turbidity screens and other management practices, which shall be used as necessary to minimize siltation, sedimentation, and erosion, and shall be left in place until disturbed areas are stabilized with permanent vegetation that will prevent the transport of sediment off site; and 2) temporary vegetation sufficient to stabilize disturbed areas.*

3.4.2-2i. *The Specific Plan shall include mechanisms that provide for the long-term creek corridor maintenance by specifying a guaranteed financial commitment to the County which accounts for all anticipated maintenance activities.*

3.4.2-2j. *The Master Drainage plan shall include the use of natural stormwater drainage systems to preserve and enhance natural features and include Best Management Practices (BMP's) including but not limited to artificial wetlands, grassy swales, infiltration/sedimentation basins, riparian setbacks.*

3.4.2-2k. *New development shall obtain from the State Water Resources Control Board a General Construction Activity Stormwater Permit under the National Pollutant Discharge Elimination System (NPDES) and comply with all requirements of the permit to minimize pollution of stormwater discharges during construction.*

Impact 3.4.2-3 Placement of housing or other structures in flood prone areas during implementation of the proposed project.

There are no FEMA-designated flood hazard areas on the project site. However, minor watercourses exist that could pose localized flooding conditions if housing and other structures are inappropriately located. Roadway construction across and along the banks of Devils Canyon Creek and Second Brushy Canyon Creek could restrict flows, resulting in roadway and upstream flooding. This is a ***potentially significant impact.***

Mitigation Measures

Implementation of the following measures will reduce the impacts of locating development in flood prone areas to a *less than significant level*:

3.4.2-3a. *All drainage-related infrastructure shall be designed in accordance with the standards contained in the Placer County Flood Control and Water Conservation District's Stormwater Management Manual. All new development shall be planned and designed so that no damage occurs to structures or improvements during the 100-year event and no inundation of private property utilized for human habitation or wastewater disposal facilities occurs during the 10-year event. The Master Drainage Plan to be provided with the Specific Plan shall identify all 100 year flood plains within the project site and designate these areas for open space uses. Plans identifying areas susceptible to 100-year and 10-year events shall be presented to the Placer County Flood Control and Water Conservation District prior to consideration by the County of the first tentative map, conditional use permit or minor use permit.*

3.4.2-3b. *Development within the project area shall comply with the requirements of the Placer County Flood Damage Prevention Regulations (Article 15.52, Placer County Code).*

3.4.2-3c. *Flood control mechanisms shall be designed to utilize natural or non-structural flood control facilities, including off-stream flood control basins, to preserve and enhance creek corridors. Flood control structures, facilities, and improvements shall be designed to conserve resources, incorporate and preserve scenic values, and incorporate opportunities for recreation where appropriate.*

Impact 3.4.2-4 Cumulative impacts created by runoff due to implementation of the proposed project that may result in on- or off-site flooding.

The existing drainages accept runoff from approximately 2,615 onsite acres, and approximately 800 acres offsite (see Figure 3.4-4c) which drain through project site watercourses. The net total area to be developed, assuming runoff coefficients of 0.20 for rural density and low density

single family residential, 0.30 for 2 and 3 unit per acre single family residential, 0.35 for medium density residential, and .60 for resort and commercial development, is the net runoff increase equivalent of approximately 200 acres of existing forested land at a runoff coefficient of .15. This represents an estimated 6 percent increase in total runoff to be accommodated at project buildout.

Although minimal overall, the possible concentration of net new runoff volumes in one or several watercourses makes such runoff a ***potentially significant cumulative impact***.

Mitigation Measure

Implementation of the following measure will reduce the contribution from the proposed project to less than cumulatively considerable, resulting in the impact being reduced to a *less than significant level*:

3.4.2-4. *The developer shall submit a master drainage plan for the project site for review and approval by the Placer County Public Works Department and the Placer County Flood Control and Water Conservation District with the Specific Plan or subsequent entitlement request submitted for the project site. The master drainage plan shall be designed to create no net increase in peak flows from any individual identified watershed (Figure 3.4-4c) and shall meet all of the requirements of the Placer County Land Development Manual and Stormwater Manual in force at the time of plan submittal. The master drainage plan shall address phasing tied to individual subdivision maps, conditional use permits, and minor use permits, subject to approval by the Public Works Department and the District. Subsequent development within the project site shall be consistent with the approved master drainage plan. If detention/retention facilities are identified as necessary, these shall be designed in accordance with the Master Drainage Plan and the Placer County Flood Control and Water Conservation District Storm Water Management Manual.*

3.4.3 AGRICULTURE/TIMBER RESOURCES

Setting

The California Department of Conservation has instituted the Farmland Mapping and Monitoring Program (FMMP) which produces maps and statistical data used for analyzing impacts on California's agricultural resources. Agricultural land is rated according to soil quality and irrigation status. Current land use information is gathered using aerial photographs, a computer mapping system, public review, and field reconnaissance. FMMP identifies four categories of Important Farmlands: Prime Farmlands, Farmlands of Statewide Importance, Unique Farmlands, and Farmlands of Local Importance. The California Department of Conservation (CDC) defines these four categories as follows:

Prime Farmland is land which has the best combination of physical and chemical features, and is able to sustain long term production of agricultural crops. This land has the soil quality, growing

season, and moisture supply needed to produce sustained high yields. Land must have been used for production of irrigated crops at some time during the four years prior to the mapping date.

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

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

Farmland of Local Importance is considered of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

Soil units that meet the criteria for Prime Farmland and Farmland of Statewide Importance occur within the project site. These consist of areas identified as Aiken loam, 2 to 9 percent slopes (Prime Farmland), Aiken loam, 9 to 15 percent slopes (Farmland of Statewide Importance), and Cohasset loam, 2 to 9 percent slopes (Farmland of Statewide Importance) (see Figure 3.4-1). However, no lands within the project site are identified as Important Farmlands by the Department of Conservation (Figure 3.4-5).

According to the California Department of Forestry and Fire Protection (CDF, letter included in Appendix A of this EIR), there was an active timber harvesting plan on the project site (THP 2-97-070 PLA) at the time their letter was written (it since expired in July 2002). Most of the property has been logged and most of the merchantable timber removed. However, there are portions of the property where proposed helicopter yarding has not been done. The timberland is highly productive and portions could be harvested in less than 20 years. Two separate non-industrial timber management plans were prepared for this property in 1993 and 1994 (NTMP 2-93-3 and NTMP 2-94-3). The forester who prepared the plans segregated the different timber stand types and estimated their current and projected growth rates. The forester estimated that over 2,000 acres of the property is capable of producing 600 to 800 board feet of timber per acre per year with proper timber management. With the recent timber harvesting in the last decade, the amount of timber on site dwindled. But in the long term, this property could, with proper management, grow 1.2 to 1.6 million board feet of timber per year, or an estimated 150 homes per year. In comparison, the Sierra Pacific Industries lumber mill in Lincoln processes about 150 million board feet of logs per year. If aggressive management was provided, this property could annually supply nearly one percent of the raw material for the Lincoln sawmill. Converting this timberland to other uses will lower productivity and reduce the timber supply in the region. As further stated in their letter, CDF is concerned about rezoning and conversion of timberland to other uses because it conflicts with CDF's mission and with the Forest Practice Act, especially Public Resources Code Sections 4512 and 4513 (included in their letter, see Appendix A of this EIR).

Placer County General Plan Policies

Agricultural and Forestry Resources

7.E.2. The County shall discourage development that conflicts with timberland management.

7.E.4. The County shall encourage qualified landowners to enroll in the Timberland Production Zone (TPZ) program.

Foresthill Divide Community Plan

Timberland

4.A.6-1 The County shall encourage the sustained productive use of forest land as a means of providing open space and conserving other natural resources.

4.A.6-2 The County shall discourage development that conflicts with timberland management and shall protect significant timber production lands from incompatible development (i.e., unrelated residential and other non-timber-related uses).

4.A.6-8 The County shall maintain a low mathematical density of allowable development in Forestry areas in order to protect major areas of potential timber resources on the Divide from conversion to other more intensive uses.

4.A.6-9 The County shall encourage clustering of development in timberland areas within the Forest Residential land use designation to preserve timber resources for productive use.

4.A.6-10 The County shall encourage the use of the Timberland Production Zone for those lands which have significant commercial timber value.

4.A.6-12 The provision of public facilities and services shall be limited in important timber areas on the Foresthill Divide.

Impacts and Mitigation Measures

Impact Evaluation Criteria

Based upon Appendix G of the State CEQA Guidelines, the proposed project would normally be considered to have a significant impact on agricultural and timber resources if it would:

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

- Conflict with existing zoning for agricultural use, or a Williamson Act contract;

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

Impact 3.4.3-1 Loss of agricultural land due to proposed development of the project site.

The project site is not currently used for agricultural purposes, and there is no record of the site being used for agricultural purposes, although a portion of the site is used for a Christmas tree farm. No lands within the project site are identified as Important Farmlands by the California Department of Conservation. This impact is therefore considered ***less than significant.***

Mitigation Measure

No mitigation measures are required.

Impact 3.4.3-2 Loss of timber production land due to proposed development of the project site.

Development of the project site will result in the conversion of over 2,000 acres of productive timber land to residential, open space and recreational uses. According to the California Department of Forestry and Fire Protection (CDF), although most of the property has been logged and most of the merchantable timber removed in accordance with an active timber harvesting plan (THP), proposed helicopter yarding has not been done. According to CDF, the timberland is highly productive and portions of the site could be harvested in less than 20 years. CDF has indicated that in the long term with proper management, the property could grow 1.2 to 1.6 million board feet of timber per year (the equivalent of an estimated 150 homes per year). CDF concludes that converting this timberland to other uses will lower productivity and reduce the timber supply in the region.

The applicant had a consulting forester prepare a response to the CDF comments (Andrew D. Funk, Professional Forester, Calif. Reg. No. 2260, see letter in Appendix A of this EIR). Mr. Funk prepared the existing Timber Harvest Plan for the project site. His letter includes the following statements regarding timber resources:

> The Foresthill Divide contains tens of thousands of acres of forested land. This timberland is currently managed for forest resources that include timber production, wildlife, fisheries, recreation and aesthetics. The largest owner is the USDA Forest Service. Other large owners include Sierra Pacific Industries and Fruit Growers. It was suggested that the Ryan et. al. property could produce 1% of Sierra Pacific's annual Lincoln wood fiber production. Sierra Pacific Industries owns more than one million acres of California timberland. The entire subject property represents just thousandths of one percent when compared to the holdings of just this one company. Sierra Pacific Industries saw mill in Lincoln is a destination mill. The facility does not derive its material entirely from Placer County but rather from the entire Central Sierra Region. The facilities [sic] close proximity to the Stockton and Sacramento ports makes the location of the Lincoln mill desirable to import sawlogs from foreign sources.

The timber industry has declined even though the subject property has been producing sawlogs for many years. Notwithstanding the obvious risk to catastrophic loss due to wildland fire, thirty years ago a timber producer could go to the market with his produce and find many buyers. Today, the timber producer goes to the market and finds the price set by only one buyer. Will that one buyer still be there in another thirty years, the earliest under the best conditions in which another substantial harvest could be contemplated? We all hope so but if the present trend is any indication of the future, then there will likely not be a market in thirty years. Already some timber producers are moving operations out of California and the United States due to uncertainty about the future direction of local, state and federal regulations…

…While pure conifer and hardwood stands exist [on the project site], the vast majority of the area contains a mixture of both conifer and hardwood. The most recent harvest substantially removed the overstory that was suppressing the release of the young developing conifers. The thinning was directed at achieving a more balanced composition. The NTMP began the process of reducing the excessive amount of incense cedar in the intermediate canopy layers that was retained from previous harvest entries. The THP continued the thinning to balance the species composition.

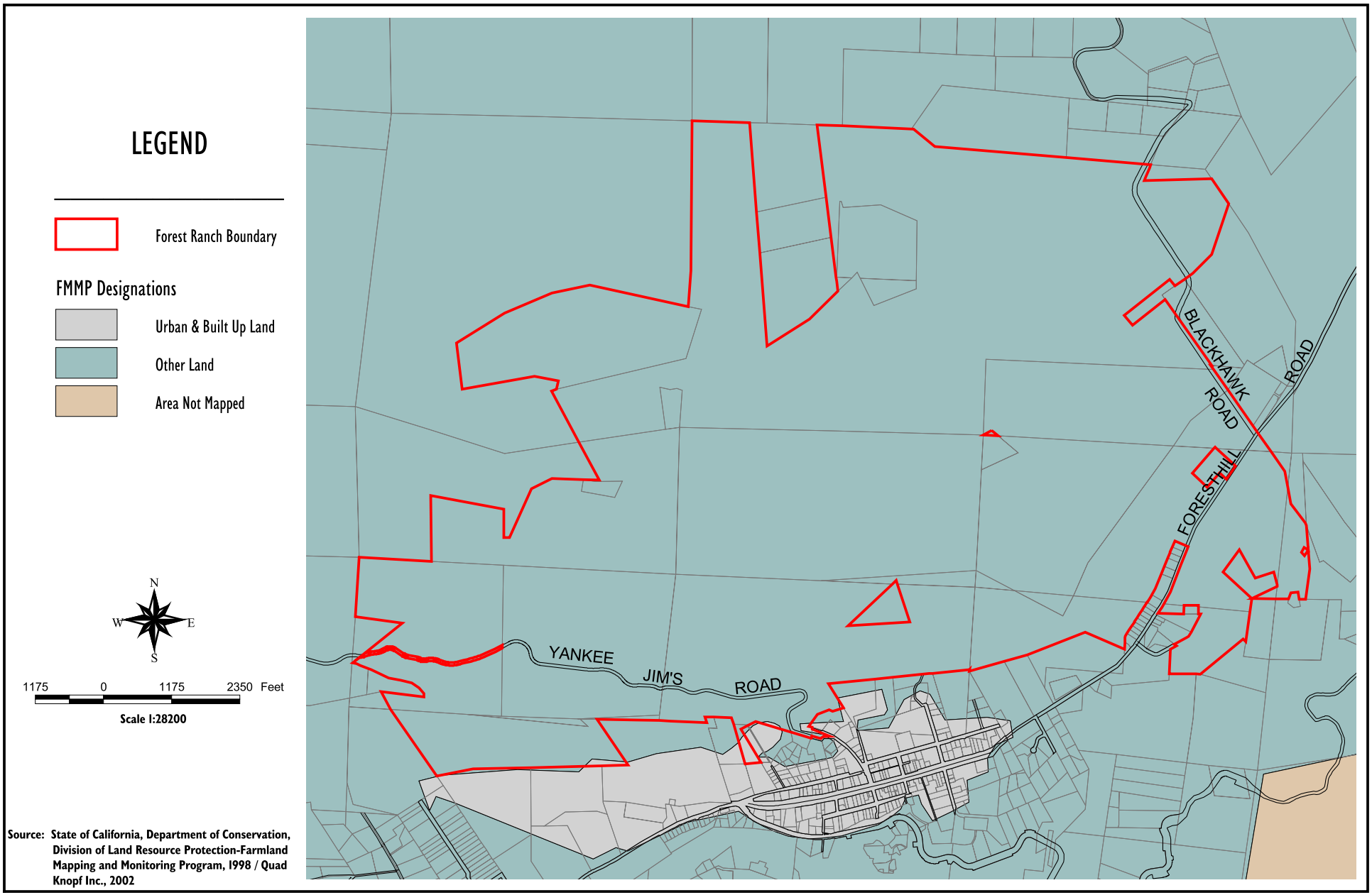
…The topography contained on the subject property north of Foresthill Divide Road is mostly gentle with some moderately sloped terrain. It is generally accepted that this area contains good forest soils. The majority of the soils are very deep and nutrient rich. These soils are capable of producing high quality sawlog and wood fiver forest products. The only exceptions to this are those areas where placer mining removed the surface soil. Slope stability problems are associated with the scraps at the diggings areas. These areas are becoming more stable with the advance of vegetation.

…The Timber Harvest Plan will expire on July 2, 2002. The helicopter portion of the THP has not been harvested due to poor market conditions. No further harvesting is planned.

…CDF has concluded from reading the NTMP's that 600 to 800 board feet per year per acre is the sawlog productivity for over 2,000 acres of the subject property. The following considerations should be made in evaluating this claim:

- How many acres will be contained in the open space areas?

- The CACTOS [California Conifer Output Simulator] projection included an estimate of current growth with one five-year growth projection. It is not clear as to whether hardwood board foot volume was included in the growth projection.



Quad Knopf

FOREST RANCH EIR

Important Farmlands Map

Figure 3.4-5

- Bulletin Number 394 was referenced as providing an estimate that the subject property was capable of producing between 600 and 800 board [feet] per acre per year. While the CACTOS projections were supported by a substantial amount of supporting documentation, the Bulletin 394 projection was not.

- The Yield tables in Bulletin 394 are derived from a sample of selected plots in cut-over land with varied forest structure and composition in the 1920's and 1930's. From this sample, forest structure and composition estimates of future volume are made given a rating of the quality of the growing site. This is typically called a site index. Or, range of site indexes called site I, II, III etc.

- Yield tables are heavily weighted on the assumption of the density and composition of average conifer stands which consist of ponderosa and sugar pine, Douglas-fir and white fir. Incense cedar is treated in the yield table construction as a minor species with compositions of 10 percent and less. The area of the NTMP identified for 600 to 800 board feet of growth per acre per year contains hardwoods and incense cedar both reported in excess of 30 percent. The influence that hardwoods have on the growth rate of conifers was not discussed in Bulletin 394; hence, the growth projections may not apply.

- To measure the productivity of a given property after conversion from a mixed forest of conifer and hardwood to entirely conifer is not a measure of a practical constrained management policy where a variety of related values are given importance. While making this type of assumption produces some great productivity numbers, the reality of constrained optimization is a reduction in conifer timber production in-lieu of enhancing other values such as wildlife habitat and recreation.

…[I]t is generally accepted that the entire Foresthill Divide contains good forest soils. These soils are capable of producing a series of periodic harvests. The current forest structure and composition is not the same forest structure and composition that existed at the time of the preparation of the NTMP's or THP 97-070. Drawing future volume conclusions from Bulletin 394 yield tables is interesting; however, it is not recommended because of the unknown competitive influence on future growth from hardwoods that are a significant part of the past and present stands. Changing the forest mix is speculative at best and improbable given the constraints imposed by other considerations such as wildlife habitat and recreation. Even if such a conversion were to occur, it is questionable if there would be any local mills which could accept sawlogs in 30 years time.

Notwithstanding the disagreement among experts regarding the potential future productivity of the project site for timber, the project applicants have not expressed interest in continuing to log

the project site. The closure of sawmills in the project area, the cost of transporting logs to sawmills out of the area, the long-term timetable of future harvests, and the environmental impacts of timber harvesting on the project site and area waterways make prospects for future timber harvesting questionable, even if the project applicants should decide to pursue it. Nevertheless, development of the project as proposed would result in the loss of this timber resource, and would contribute to the cumulative loss of timber resources in the region. This impact is therefore considered ***cumulative, significant and unavoidable.***

Mitigation Measure

No mitigation measures are available.

3.4.4 AIR QUALITY

Setting

Ambient air quality is generally determined by climatological conditions, the topography of the air basin, and the type and amount of pollutants emitted. The Forest Ranch area is subject to a combination of topographical and climatic factors which result in the potential for regional and local pollutant accumulation. The following discussion describes relevant characteristics of the air basin and provides an overview of physical conditions affecting pollutant accumulation and dispersion in the project vicinity. The sources, types, and health effects of major air pollutants are also described. Technical materials are included as Appendix E of this EIR.

Air quality is an important resource in the Foresthill area. Clean, fresh air is one of the features that attracts people to live in rural areas such as Foresthill. The Foresthill area is less subject to severe inversion conditions in the winter months than other Placer County communities. The ridgetop location of most development avoids the effects of strong inversions in winter that affect communities located in valleys. The Foresthill area is adversely affected by the transport of ozone into the local air basin from areas to the west into an area that would otherwise be fairly pristine. The purpose of this section is to underscore the importance of air quality to area residents, and to assure that all feasible actions are taken to maintain and improve air quality.

Climate and Meteorology

This section examines the climatic influences that affect air quality in the Foresthill area and describes available data on measured contaminant levels near the project site. It outlines the regulatory and planning agencies and programs that must be reflected in this EIR.

Climatic factors that affect air quality near the project site are wind and atmospheric stability. The daytime wind direction is generally westerly, the result of up-river breezes typical in mountainous terrain. During the nighttime, down-river “drainage” flows are frequent,

particularly in winter. These nighttime winds are generally light and follow the watercourse in a downstream direction.

Atmospheric stability is a measure of the atmosphere's ability to vertically dilute pollutants. When the atmosphere is very stable (i.e., inversion conditions), pollutants may accumulate within a shallow layer near the ground, with resulting poor air quality. In the Foresthill area, these conditions are most likely to occur in winter.

Potential air quality problems near the project site are directly related to climatic factors. During the summer months, the general wind circulation has the potential to transport ozone from the adjacent Sacramento Valley Air Basin into the Foresthill area, and Particulate Matter 10 microns or less in diameter (PM10) concentrations can be elevated by local burning, controlled burns, and forest fires. During the winter months, more localized problems can arise when PM10 emissions from wood burning have the potential to accumulate under inversion conditions.

Existing Air Quality

Criteria Air Pollutants. This section describes the pollutants of greatest importance in the project vicinity. It provides a description of the physical properties, the health and other effects of the pollutant, and the sources of the pollutant. The California Air Resources Board (CARB) has divided the state into air basins that each has unique topological conditions affecting air quality. Placer County spans three air basins: the Sacramento Valley Air Basin (SVAB), the Mountain Counties Air Basin (MCAB), and the Lake Tahoe Air Basin (LTAB). The Forest Ranch project site is in the portion of Placer County that is part of the MCAB, but is in close proximity to the SVAB. Therefore, emissions data for both the MCAB and the SVAB are supplied for reference.

Ozone

Description and Physical Properties. Ozone is what is known as a photochemical pollutant. It is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between reactive organic gases (ROG), oxides of nitrogen (NOx), and sunlight. ROG and NOx are emitted from sources that are widespread throughout the Sacramento Valley. In order to reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. Ozone is a regional air pollutant. It is generated over a large area and is transported and spread by wind. The worst ozone concentrations tend to be found downwind from emission sources in Sacramento Valley metropolitan areas, such as the cities of Auburn, Grass Valley and the community of Cool.

Effects. While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems such as forests and foothill communities, and damages agricultural crops and some human-made materials, such as rubber, paint, and plastics.

Sources. Ozone is not a directly emitted pollutant. Please refer to sources of ROG and NOx for a combined "source" list for ozone.

Reactive Organic Gases (ROG)

Description and Physical Properties. Reactive organic gases are photochemically reactive hydrocarbons that are important for ozone formation. This definition excludes methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonates, methylene chloride, methyl chloroform, and various chlorofluorocarbons (CFCs).

Effects. There are no health standards for ROG separately. The main concern with ROG is its role in photochemical ozone formation. In addition, some compounds that make up ROG are toxic. An example is benzene, which is a carcinogen.

Sources. Approximately 34 percent of the 3.48 tons per day of ROG emissions in the MCAB portion of Placer County in 2001 originated from on-road motor vehicles. Another 23 percent originated from off-road motor vehicles, which resulted in more than 56 percent from mobile sources. Another 17± percent originated from coatings and other process solvents.

In comparison, the SVAB portion of Placer County has a similar distribution of ROG emissions. Table 3.4-3 shows the 2001 ROG emissions inventory for the MCAB and SVAB portions of Placer County.

Table 3.4-3
2001 ROG Emissions Inventory for the MCAB and SVAB Portions of Placer County

Category	Tons Per Day		Percent of Total	
	MCAB	SVAB	MCAB	SVAB
Fuel Combustion	0	0.03	0.0%	0.1%
Cleaning & Surface Coat	0.64	4.24	16.7%	17.8%
Petroleum Prod & Market	0.09	0.41	2.3%	1.7%
Industrial Process	0	1.38	0.0%	5.8%
Solvent Evaporation	0.4	2.97	10.4%	12.5%
Miscellaneous Processes	0.53	1.88	13.8%	7.9%
On-road Vehicles	1.29	8.24	33.6%	34.7%
Other Mobile	0.88	4.61	22.9%	19.4%
Wildfires	0.01	0.01	0.3%	0.0%
TOTALS	**3.84**	**23.77**	**100%**	**100%**

Source: California Air Resources Board.

Transportation factors which contribute to an area's mobile source emissions include the population, the number of on-road vehicles in use, the average daily vehicle trips, and the average daily vehicle miles traveled. Since ROG from automobiles is a result of incomplete combustion and would therefore be higher when an engine is operating inefficiently and a result of evaporation of hydrocarbon-based fuels, a large percentage of ROG emissions occur during the first few minutes of vehicle operation, and while the vehicle engine is cooling down.

Because this large portion of ROG emissions is generated by means that are unrelated to the vehicle running time, ROG emissions do not increase in direct proportion to trip lengths; some short trips could produce almost as much ROG as longer trips. The average daily trips in a given area probably have the greatest effect on pollutant emissions.

Oxides of Nitrogen (NOx)

Description and Physical Properties. NOx is a family of gaseous nitrogen compounds and are precursors to ozone formation. The major component of NOx, nitrogen dioxide (NO2), is a reddish-brown gas that is toxic at high concentrations. NOx results primarily from the combustion of fossil fuels under high temperature and pressure.

Effects. Health effects associated with NOx are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NOx can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to production of particulate nitrates. Airborne NOx can also impair visibility. NOx is a major component of acid disposition in California.

Sources. Over 95 percent of the 3.67 tons per day of NOx emissions in the MCAB portion of Placer County in 2001 originated from mobile sources. Within the mobile sources category, 49 percent of the NOx was from trains.

In comparison, less than 90 percent of the NOx emissions in the SVAB portion of Placer County is from mobile sources, of which less than 16 percent is from trains, 17.5 percent is from off-road equipment, and almost 15 percent is from light-duty passenger vehicles. Table 3.4-4 shows the 2001 NOx emissions inventory for the MCAB and SVAB portions of Placer County.

Table 3.4-4
2001 NOx Emissions Inventory for the MCAB and SVAB Portions of Placer County

Category	Tons Per Day		Percent of Total	
	MCAB	SVAB	MCAB	SVAB
Fuel Combustion	0.03	1.33	0.8%	6.1%
Industrial Process	0.00	0.12	0.0%	0.6%
Miscellaneous Processes	0.12	0.76	3.3%	3.5%
On-road Vehicles	1.35	11.20	36.8%	51.5%
Other Mobile	2.16	8.33	58.9%	38.3%
Wildfires	0.01	0.00	0.3%	0.0%
TOTALS	**3.67**	**21.74**	**100%**	**100%**

Source: California Air Resources Board.

Carbon Monoxide (CO)

Description and Physical Properties. CO is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air (unlike ozone).

Under most conditions, CO does not persist in the atmosphere and is rapidly dispersed. CO exceedances are most likely to occur in the winter, when relatively low inversion levels trap pollutants near the ground and concentrate the CO. Since CO is somewhat soluble in water, normal winter conditions of rainfall and fog can suppress CO concentrations.

Effects. Whereas carbon dioxide (CO2) creates a weak bond with hemoglobin, the oxygen (O2)-carrying protein in blood, and therefore gives it up easily in the CO2/O2 exchange that is the breathing process, carbon monoxide binds strongly binds strongly, not releasing easily, thus reducing the blood's capacity for carrying O2 to the heart, brain, and other parts of the body. At high concentrations, CO can cause heart difficulties in people with chronic diseases, can impair mental abilities, and can even cause death.

Sources. Almost 62 percent of the 27.96 tons per day of CO in the MCAB portion of Placer County were from mobile sources (a 7 to 3 ratio favoring on-road mobile). Whereas the majority of that mobile source total was from light-duty cars and trucks (47 percent), another 15 percent were generated by recreational boats. In addition, waste burning and disposal (over 22 percent of total) and residential fuels (over 15 percent of total) were significant contributors.

In contrast, the SVAB portion of Placer County had more CO emissions coming from mobile sources (over 75 percent). However, the ratio still favored on-road mobile by about a 7 to 3 margin. In addition, the waste burning and disposal only contributed 10.5 percent and residential fuel combustion only less than 13 percent of the total. Table 3.4-5 shows the 2001 CO emissions inventory for the MCAB and SVAB portions of Placer County.

Table 3.4-5
2001 CO Emissions Inventory for the MCAB and SVAB Portions of Placer County

Category	Tons Per Day		Percent of Total	
	MCAB	SVAB	MCAB	SVAB
Fuel Combustion	0.01	1.14	0.0%	0.8%
Industrial Process	0.00	0.09	0.0%	0.1%
Misc Processes	10.48	33.92	37.5%	23.3%
On-road Vehicles	12.23	78.55	43.7%	54.0%
Other Mobile	5.04	31.79	18.0%	21.8%
Wildfires	0.20	0.10	0.7%	0.1%
TOTAL	**27.96**	**145.59**	**100%**	**100%**

Source: California Air Resources Board.

Transportation factors discussed in the section on ROG above are also pertinent to CO emissions. CO is also a result of incomplete combustion and would therefore be higher when an engine is operating inefficiently, therefore emitting a large percentage of emissions during the first few minutes of vehicle operation or when idling or traveling at low rates of speed. The degree of CO emissions from automobiles is directly related to the percentage of time the automobile spends in this less efficient mode during its usage. Traffic congestion is therefore considered the primary factor determining CO emissions from automobiles.

Respirable Particulate Matter (PM10)

Description and Physical Properties. Suspended particulate matter (airborne dust) consists of solid and liquid particles small enough to remain suspended in the air for long periods. Respirable particulate matter includes particulates of 10 microns or less in diameter – those that are small enough to be inhaled, pass through the respiratory system, and lodge in the lungs, with resultant health effects. Figure 3.4-6 shows the relative diameter of PM10.

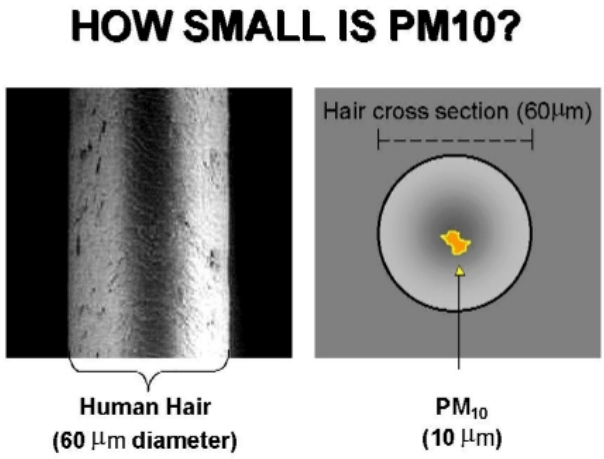


Figure 3.4-6

Particulate matter is a complex mixture that consists of dry solid fragments, solid cores with liquid coatings and small droplets of liquid. These tiny particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particulate matter is divided into two classes: primary and secondary. Primary particles are released directly into the atmosphere from sources of generation. Secondary particles are formed in the atmosphere because of reactions that involve gases.

Particles of 10 microns or less in diameter have been demonstrated to easily penetrate into the airways and lungs, where they may produce harmful effects such as the worsening of asthma and other lung diseases. This subset of the total particulate matter is called respirable particulate matter, or PM10. Figure 3.4-6 shows the relative size of PM10. The actual composition of PM10 varies greatly with time and location. It depends on the sources of the material and meteorological conditions. However, PM10 can come from such primary sources as fugitive dust from paved and unpaved roads, construction/demolition, agricultural activities; residential wood combustion; prescribed burning (forest and agricultural); and automotive tailpipes. PM10 can also be generated as a secondary source from the gaseous emissions from combustion

products, automotive tailpipes, industrial sources, residential wood combustion, and prescribed burning (forest and agricultural).

Effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Non-health-related effects include reduced visibility and soiling of buildings.

Sources. Almost 52 percent of the 8.13 tons per day of PM10 emissions in the MCAB portion of Placer County in 2001 were unpaved road dust. Another over 10 percent was paved road dust. Adding these to the over one percent from mobile source exhaust shows that over 60 percent of the PM10 emissions resulted from mobile vehicle activity. Another over 20 percent were generated by construction and demolition activity.

In comparison, over 30 percent of the emissions in the SVAB portion of Placer County were from paved road dust, and only 12 percent were from unpaved road dust. Combined with the over 6 percent that is directly emitted, mobile source activity contributed over 48 percent of the emissions. In the SVAB portion of Placer County, almost 20 percent of emissions were from residential fuel combustion, and another over 15 percent were generated by construction and demolition activity. Table 3.4-6 shows the 2001 PM10 emissions inventory for the MCAB and SVAB portions of Placer County.

Table 3.4-6
2001 PM_{10} Emissions Inventory for the MCAB and SVAB Portions of Placer County

Category	Tons Per Day		Percent of Total	
	MCAB	SVAB	MCAB	SVAB
Fuel Combustion	0.00	0.10	0.0%	0.7%
Industrial Process	0.08	0.84	1.0%	6.0%
Residential Fuel Combustion	0.65	2.77	8.0%	19.9%
Construction & Demolition	1.64	2.10	20.2%	15.1%
Paved Road Dust	0.56	4.19	6.9%	30.1%
Unpaved Road Dust	4.21	1.67	51.8%	12.0%
Other Miscellaneous Processes	0.84	1.35	10.3%	9.7%
On-road Vehicles	0.03	0.33	0.4%	2.4%
Other Mobile	0.08	0.53	1.0%	3.8%
Wildfires	0.04	0.02	0.5%	0.1%
TOTAL	**8.13**	**13.9**	**100%**	**100%**

Source: California Air Resources Board.

Other Pollutants

Sulfur Dioxide. Sulfur dioxide (SO2) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. In other parts of the country, SO2 is a primary component of acid rain (precipitation). However, in Placer County

and the SVAB, as in most of California, the ambient concentrations of SO2 are not high enough to create a significant problem. SO2 can create some localized problems by reacting with the moisture in the body's nasal cavities much the same way as it does with acid rain, creating acid in the nose and bronchial cavities, resulting in a stinging sensation. Since SO2 disperses rapidly, however, the receptor would have to be in proximity to an emission source.

Sulfates. Sulfates are particulate products of combustion of sulfur-containing fossil fuels. When SO or SO2 are exposed to oxygen, it precipitates out into sulfates (SO3 or SO4). Data would indicate this is not a pollutant of concern in Placer County.

Visibility Reducing Particles. This standard is a measure of visibility. The CARB does not yet have a measuring method with enough accuracy or precision to designate areas in the state as attainment or nonattainment. The entire state is labeled unclassified.

Existing Emission Sources

The Foresthill area contains few industrial sources of pollution. Major emission sources include motor vehicles, open burning, and residential wood burning. Unpaved roads, logging operations, and construction activities contribute to localized levels of PM10.

There are two stationary sources of emissions within a 10-mile radius that are listed in the CARB's emissions inventories for criteria and/or toxic emissions. These are Georgia Pacific Corporation and Cliff Edwards Incorporated. The Cliff Edwards facility is located in Colfax approximately eight miles north-northwest of the Foresthill area, and the Georgia Pacific Facility (now closed) was located at 23801 Foresthill Road.

Regional Air Quality

Both federal and state governments have established standards for ambient pollutant concentrations. National and California standards have focused on six primary pollutants, called "criteria" air pollutants because such criteria have been set for them: ozone (O3), carbon monoxide (CO), respirable particulate matter (PM10), nitrogen dioxide (NO2), sulfur dioxide (SO2), and lead (Pb). In the MCAB portion of Placer County, ozone is of particular concern, although the area also experiences some highly-localized PM10 concentrations. Air quality regulations are discussed below. Table 3.4-7 shows both national and California air quality standards.

Table 3.4-7
National and California Ambient Air Quality Standards

Pollutant [1]	Averaging Time	NAAQS[2]	CAAQS[3]
Ozone (O_3)	8-hour [4]	0.08 ppm	N/A [5]
	1-hour	0.12 ppm	0.09 ppm
Carbon Monoxide (CO)	8-hour	9 ppm	9.0 ppm
	1-hour	35 ppm	20 ppm
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.053 ppm	N/A

Pollutant [1]	Averaging Time	NAAQS[2]	CAAQS[3]
	1-hour	N/A	0.25 ppm
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	0.030 ppm	N/A
	24-hour	0.14 ppm	0.04 ppm
	1-hour	N/A	0.25 ppm
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	N/A	30 $\mu g/m^3$
	24-hour	150 $\mu g/m^3$	50 $\mu g/m^3$
	Annual Arithmetic Mean	50 $\mu g/m^3$	N/A
Fine Particulate Matter ($PM_{2.5}$)[6]	Annual Arithmetic Mean	15 $\mu g/m^3$	N/A
	24-hour	65 $\mu g/m^3$	N/A
Lead (Pb)	30-Day Average	N/A	1.5 $\mu g/m^3$
	Calendar Quarter	1.5 $\mu g/m^3$	N/A
Sulfates (SO_4)	24-hour	N/A	25 $\mu g/m^3$
Visibility Reducing Particles	8-hour (10 am to 6 pm)	N/A	[7]
Hydrogen Sulfide (H_2S)	1-hour	N/A	0.03 ppm

[1] Standards are expressed in units in which they were promulgated. (ppm = parts per million and $\mu g/m^3$ = micrograms per cubic meter)

[2] National standards (other than ozone, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once per year.

[3] California standards for ozone, CO, SO_2 (1-hour averaging period), NO_2, and PM_{10} are not to be exceeded. All others are not to be equaled or exceeded.

[4] This is included for informational purposes. EPA has not yet designated areas for the 8-hour standard. For detailed information on the 8-hour standard, see (www.epa.gov/airlinks/ozpminfo.html).

[5] N/A = No health standard has been set.

[6] This is included for informational purposes. The US District of Columbia Court of Appeals invited briefing on the question of remedy to the $PM_{2.5}$ concern.

[7] In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Counties, metropolitan areas, and air basins are classified as attainment or non-attainment with respect to state and federal ambient pollutant standards. An area's classification is determined by comparing actual monitored air pollutant concentrations with state and federal standards. The CARB and assorted air districts operate air pollutant monitoring stations throughout the area. The air monitoring station currently operating closest to the project site is Placer County Air Pollution Control District's (PCAPCD's) Colfax-City Hall station in Colfax, approximately eight miles north-northwest of the Foresthill area. This station collects both particulate and ozone pollutant monitoring data. Three other monitoring stations are located within a 20-mile radius of the project site: one in Placer County, one in Nevada County and one in El Dorado County. PCAPCD operates a station at the DeWitt Center in Auburn, approximately 13 miles south-southwest of the Foresthill area and, as with the Colfax station, currently monitors ozone and particulate matter. The Northern Sierra Air Quality Management District (NSAQMD) operates a monitor in the Litton Building in Grass Valley. This site is located approximately 19 miles north-northwest of the Foresthill area and monitors ozone and PM2.5 concentrations. The California Air Resources Board operates a seasonal ozone monitoring site in Cool in El Dorado County. This site is just east of Auburn, about 13 miles south-southwest of the Foresthill area.

Ozone

Ozone concentrations in central and western Placer County typically exceed state and federal standards several times during the year, as shown by monitoring data in Table 3.4-8. Because these standards violations occur throughout the broader Sacramento area, the U.S. Environmental Protection Agency (EPA) has designated the Sacramento Federal Ozone Non-Attainment Air Quality Area (SFONA), an area spanning the broader Sacramento area including Placer County to the summit of the Sierra, as a nonattainment area with respect to the federal one-hour ozone standard. Placer County is also designated as a nonattainment area for the state ozone standard. Ozone is formed in the atmosphere in the presence of sunlight by a series of chemical reactions involving oxides of nitrogen (NOx) and reactive organic gases (ROG). Because these reactions occur on a regional scale and over a period of time, ozone is considered a regional air pollutant. While the majority of ozone-forming emissions are produced in the Sacramento metropolitan area, prevailing delta breezes usually carry the emissions from cars and other sources up into the foothills. During this transport time, this polluted air continuously reacts to form ozone. By the time the polluted air reaches the foothills, the majority of the emissions have been converted to ozone, therefore the foothills frequently have the highest ozone levels in the region.

Table 3.4-8 shows that the state ozone standard was exceeded on an average of 7 days per year between 1999 and 2002 at the Colfax monitoring station; the federal one-hour ozone standard was violated only three times during this period. Although EPA only recently promulgated the eight-hour ozone standard of 0.08 parts per million (ppm), historical data indicate that ozone concentrations at the Colfax monitoring site would have exceeded the new federal standard 29 times in the four year period. Since the Colfax station is closest to the project site, data at this station are considered most representative of concentrations in the study area.

Table 3.4-8
Ozone Monitoring Data for 1999 through 2002

Monitoring Stations	Year	Ozone 1-Hour			Ozone 8-Hour	
		Max (ppm)	# > State	# > Fed	Max (ppm)	# > Fed
Colfax – City Hall	1999	0.159	9	1	0.093	9
	2000	0.070	0	0	0.058	0
	2001	0.095	2	0	0.088	2
	2002	0.142	17	2	0.113	18
Auburn	1999	0.142	24	2	0.106	25
	2000	0.124	22	0	0.107	17
	2001	0.118	22	0	0.107	21
	2002	0.136	16	3	0.115	15
Grass Valley - Litton Building	1999	0.165	17	1	0.103	28
	2000	0.130	18	1	0.113	28
	2001	0.116	17	0	0.106	23
	2002	0.127	20	1	.113	22
Cool- Highway 193	1999	0.144	36	2	0.117	35

Monitoring Stations	Year	Ozone 1-Hour			Ozone 8-Hour	
		Max (ppm)	# > State	# > Fed	Max (ppm)	# > Fed
	2000	0.128	34	2	0.113	29
	2001	0.148	40	1	0.109	32
	2002	0.156	50	6	0.137	42

Source: California Air Resources Board.

Particulate Matter

Airborne particulate matter is generally composed of minute separate particles in the air such as dust, soot, aerosols, fumes and mists. The particles of primary concern are inhalable particulates. The characteristics, sources and potential health effects of larger, or "coarse) particles (from 2.5 to 10 micrometers in diameter) and smaller or "fine" particles (smaller than 2.5 micrometers in diameter) are very different. Coarse particles, or PM10, are generated by sources such as windblown dust, agricultural fields, construction activities, and dust from vehicular traffic on paved and unpaved roads. Fine particles, or PM2.5, are generally emitted from combustion-related activities such as industrial combustion, vehicle exhaust, and residential wood-burning stoves and fireplaces. Fine particles are also formed in the atmosphere when gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds, emitted by combustion activities, are transformed by chemical reactions in the air.

Please refer to the CARB website (http://www.arb.ca.gov/aqd/aqdpage.htm) for detailed information regarding PM2.5 monitoring. The District is not the operating agency in the PM2.5 monitoring network.

Nitrogen Dioxide

NO2 is an indirect product of fuel combustion in industrial sources, motor vehicles, and other mobile sources (e.g., trains, airplanes, etc.). NO2 concentrations in Placer County are well within state and federal standards.

Sulfur Dioxide

The major source of SO2 emissions is fuel-burning equipment in which fuel oil and/or coal is consumed. Typical sources of SO2 include power plants and steam generators; high SO2 concentrations generally occur in proximity to these sources. SO2 concentrations in Placer County are well within state and federal standards.

Local Air Quality

Factors affecting the air quality at a local level are similar to factors mentioned above related to regional air quality. Due to the regional nature of ozone, the project site will be affected by the ozone created from the emissions of ozone precursors, ROG and NOx, emitted from up-wind sources. Since ozone is a summertime pollutant and the prevailing winds during the day in the area are from the west from Sacramento during the summer, the project site will be a recipient of

ozone pollution from the metropolitan Sacramento area. The vehicles associated with the project will contribute to ozone concentrations upwind of the project site.

PM10 is also a regional pollutant, but seems to be a pollutant of concern during the winter months. The cooler winter temperatures tend to favor the formation of secondary particulates like ammonium nitrate, and combustion sources such as smoke from fireplaces are also more prevalent. In addition, the inversion layer is much lower in the winter months, thus providing less mixing area for the emitted pollutants. The prevailing winds are still from the west, so the regional aspects of PM10 follow the same rationale as the regional pollutant ozone. However, the winter months often have times of low wind speed, stagnant conditions that also produce high PM10 concentrations. These conditions will produce a more localized effect to receptors in the immediate area in and around the project site.

Sensitive Receptors

The location of a development project is a major factor in determining whether it will result in localized air quality impacts. The potential for adverse air quality impacts increases as the distance between the source of emissions and members of the public decreases. Impacts on sensitive receptors are of particular concern. Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors.

Impacts generally are not limited to sensitive receptors. All members of the population can be adversely affected by criteria pollutants, toxic air contaminants, odor, and dust, thus any consideration of potential air quality impacts should include all members of the population. This discussion, however, focuses on sensitive receptors because they are most vulnerable to the effects of air pollution.

Air quality problems arise when sources of air pollutants and sensitive receptors are located near one another. Types of land use conflicts that should be avoided include:

- A development project with sensitive receptors in proximity to a congested intersection or roadway with high levels of emissions from motor vehicles. High concentrations of carbon monoxide, fine particulate matter, or toxic air contaminants are the most common concerns.
- A development project with sensitive receptors close to an industrial source of toxic air contaminants.
- A development project with sensitive receptors close to a source of odorous emissions. Although odors generally do not pose a health risk, they can be quite unpleasant and often lead to citizen complaints to the air district and to local government.
- A development project with sensitive receptors close to a source of high levels of nuisance dust emissions.

When evaluating whether a development proposal has the potential to result in localized impacts, the nature of the air pollutant emissions, the proximity between the emitting facility and sensitive receptors, the direction or prevailing winds, and local topography will be considered. Often,

providing an adequate distance (or buffer zone) between the source or emissions and the receptor(s) will mitigate the impact.

Placer County General Plan Policies

Air Quality

6.F.3. The County shall support the Placer County Air Pollution Control District (PCAPCD) in its development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds, and rules to more adequately address the air quality impacts of new development.

6.F.4. The County shall solicit and consider comments from local and regional agencies on proposed projects that may affect regional air quality.

6.F.5. The County shall encourage project proponents to consult early in the planning process with the County regarding the applicability of countywide indirect and areawide source programs and transportation control measures (TCM) programs. Project review shall also address energy-efficient building and site designs and proper storage, use, and disposal of hazardous materials.

6.F.6. The County shall require project-level environmental review to include identification of potential air quality impacts and designation of design and other appropriate mitigation measures or offset fees to reduce impacts. The County shall dedicate staff to work with project proponents and other agencies in identifying, ensuring the implementation of, and monitoring the success of mitigation measures.

6.F.7. The County shall encourage development to be located and designed to minimize direct and indirect air pollutants.

6.F.8. The County shall submit development proposals to the PCAPCD for review and comment in compliance with CEQA prior to consideration by the appropriate decision-making body.

6.F.9. In reviewing project applications, the County shall consider alternatives or amendments that reduce emissions of air pollutants.

6.F.10. The County may require new development projects to submit an air quality analysis for review and approval. Based on this analysis, the County shall require appropriate mitigation measures consistent with the PCAPCD's 1991 Air Quality Attainment Plan (or updated edition).

6.G.1. The County shall require new development to be planned to result in smooth flowing traffic conditions for major roadways. This includes traffic signals and traffic signal coordination, parallel roadways, and intra- and inter-neighborhood connections where significant reductions in overall emissions can be achieved.

6.G.3. The County shall encourage the use of alternative modes of transportation by incorporating public transit, bicycle, and pedestrian modes in County transportation planning and by requiring new development to provide adequate pedestrian and bikeway facilities.

6.G.5. The County shall endeavor to secure adequate funding for transit services so that transit is a viable transportation alternative. New development shall pay its fair share of the cost of transit equipment and facilities required to serve new projects.

6.G.6. The County shall require large new developments to dedicate land for and construct appropriate improvements for park-and-ride lots, if suitably located.

Foresthill Divide Community Plan Policies

4.C.1-1 The County shall determine project air quality impacts using analysis methods and significance thresholds recommended by the PCAPCD.

4.C.1-2 The County shall ensure that air quality impacts identified during CEQA review are consistently and fairly mitigated.

4.C.1-3 The County shall ensure all air quality mitigation measures are feasible, implementable and cost effective.

4.C.1-4 The County shall reduce the air quality impacts of development projects that may be insignificant by themselves, but cumulatively are significant.

4.C.1-5 The County shall encourage innovative measures to reduce air quality impacts.

4.C.4-1 The County shall require residential development projects and projects categorized as sensitive receptors to be located an adequate distance from existing and potential sources of toxic emissions such as freeways, major arterials, industrial sites and hazardous material locations.

4.C.6-1 The County shall encourage developers to limit fireplace installations in new developments.

4.C.6-2 The County shall encourage developers to install low emitting, EPA certified fireplace inserts and/or wood stoves, pellet stoves or propane fireplaces.

4.C.7-5 The County shall encourage project sites designed to increase the convenience, safety and comfort of people using transit, walking or cycling.

4.C.7-6 The County shall require an air quality/transportation design analysis for projects exceeding District CEQA significance thresholds (interim thresholds are 10 tons/year for ROG and NOx).

4.C.7-7 The County shall ensure that upgrades to existing roads (widening, curb and gutter, etc.) include bicycle and pedestrian improvements in their plans and implementation where appropriate.

4.C.7-8 The County shall discourage open outdoor burning in new residential development with densities greater than two dwelling units per acre.

4.D.7-9 The County shall require new large residential development proposals to reduce project air quality impacts below the significant level.

Regulatory Setting

Federal. At the federal level, the EPA has been charged with implementing national air quality programs. The EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (FCAA). The President first signed the FCAA into law in 1970. The Act was substantially amended in 1977 and again in 1990.

State/Local. The CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California, and for implementing its own air quality legislation called the California Clean Air Act (CCAA), adopted in 1988. The CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the EPA.

In addition, states may establish their own standards, provided the state standards are at least as stringent as the NAAQS. California has established California Ambient Air Quality Standards (CAAQS) pursuant to California Health and Safety Code §39606(b), and its predecessor statutes. Table 3.4-7 presents the federal and state air quality standards.

Air quality in the Foresthill area is regulated by several agencies including EPA, CARB, and the Placer County Air Pollution Control District (PCAPCD). Each of these agencies develops rules and/or regulations to attain various air quality goals. Although EPA regulations may not be superseded, both State and local regulations may be more stringent than federal air quality regulations. In general, state and federal agencies are responsible for regulating emissions from on-road and off-road vehicles and establishing air quality standards. Local air districts are responsible for implementing state and federal air quality regulations, permitting stationary sources of air pollution, and developing plans aimed at attaining ambient air quality standards. Emissions from indirect sources, such as automobile traffic associated with development projects, are addressed through local air districts' air quality plans.

Air quality is sometimes regulated on a county-by-county basis and sometimes on a regional (e.g., basin-wide) basis. This distinction is particularly relevant in Placer County, which spans three air basins in California: the southwestern third of the county lies within the Sacramento Valley Air Basin (SVAB), the northernmost portion of placer County is within the Lake Tahoe Air Basin (LTAB), and the remainder is within the Mountain Counties Air Basin (MCAB).

Placer County Air Pollution Control District

At a local level, air quality is managed through land use and development planning practices, which are implemented by Placer County; and through permitted source controls, which are implemented by the Placer County Air Pollution Control District (PCAPCD). The PCAPCD is also the agency responsible for enforcing many federal and state air quality requirements, and for establishing air quality rules and regulations.

The 1988 California Clean Air Act requires nonattainment areas to develop plans aimed at achieving state ambient standards. The PCAPCD has developed an Air Quality Attainment Plan (AQAP) outlining strategies for achieving the state ozone ambient standard. The AQAP outlines both stationary and mobile emission source control measures, and emphasizes Transportation Control Measures and Indirect Source Control Measures as means of reducing mobile source emissions in Placer County. Measures in the AQAP include:

- Areawide carpool/vanpool matching and assistance
- City or County trip reduction ordinances
- In new developments, provision of bikeways and bicycling support facilities and pedestrian amenities such as sidewalks, adequate crosswalks, and building entries near sidewalks rather than behind large parking lots
- Use of alternative motor fuels and energy sources
- Jobs/housing balance requirement for new developments
- Mixed land use requirement, i.e., residences, workplaces, and services located closely enough that private motorized transit between them would not be necessary
- Transit service expansion and operational changes
- Parking space limitations
- Suburban fringe area park-and-ride lots

The PCAPCD has several rules that relate to the proposed project, listed below:

RULE 205 Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause to have a natural tendency to cause injury or damage to business or property.

RULE 217 Cutback and Emulsified Asphalt Paving Materials. A person shall not discharge to the atmosphere volatile organic compounds (VOC's) caused by the use or manufacture of Cutback or Emulsified asphalts for paving, road construction or road maintenance, unless such manufacture or use complies with the provisions of this Rule.

RULE 218 Architectural Coatings. Purpose: To limit the quantity of volatile organic compounds in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the District. Applicability: Except as provided in Section 104, this rule is applicable to any person who supplies, sells, offers for sale, or manufactures any

architectural coating for use for all of Placer County, as well as any person who applies or solicits the application or any architectural coating within Placer County.

RULE 224 Aggregate Containing Asbestos. No person shall use aggregate containing asbestos in any application or use except as provided in this Rule.

RULE 318 Land Development Open Burning. Pursuant to Section 41802, this Rule authorizes the use of open outdoor fires for the disposal of vegetative material (woodwaste) grown on property being developed for commercial or residential purposes under the following conditions:

A. RULE 301 through RULE 314 except RULE 307 and the following sections of this Rule shall apply.
B. Woodwaste should be windrowed if economically and technically feasible.
C. The Air Pollution Control Officer or staff shall review all permits prior to the burning.
D. The Air Pollution Control Board of the District finds it more desirable to burn than dispose of by other available means.
E. A minimum drying time of six (6) weeks shall be required for trees, stumps, and large branches greater than six (6) inches in diameter.
F. Wood waste greater than 12 inches in diameter, with the exception of stumps, shall not be included in the burn.
G. Stumps greater than 12 inches in diameter at the cut shall not be included in the burn unless split at least in half and free of dirt.

Impacts and Mitigation Measures

Impact Evaluation Criteria

Based upon Appendix G of the State CEQA Guidelines, the proposed project would normally be considered to have a significant impact on air quality if project-generated emissions would:

- Cause a violation of an ambient air quality standard or worsen an existing violation
- Contribute substantially to an existing or projected air quality violation
- Expose sensitive receptors to substantial pollutant concentrations
- Conflict with adopted environmental plans, policies, or regulations for air pollutants
- Expose sensitive receptors to objectionable odors

In practice, the PCAPCD recommends use of a combination of quantitative and qualitative criteria described below. For purposes of this EIR, impacts are considered significant if the proposed project would:

- Cause emissions from all project-related sources (including mobile sources) to exceed the PCAPCD's New Source Review Rule, which includes the following thresholds:

ROG	82 lb/day
NOx	82 lb/day
CO	550 lb/day
PM10	82 lb/day

- Cause or contribute to local CO concentrations exceeding 20 parts per million (ppm) over a 1-hour averaging period or 9 ppm over an 8-hour averaging period

- Expose sensitive receptors to toxic air contaminants that would adversely impact their health and well-being, or

- Conflict with or obstruct implementation of any applicable air quality plans

Impact 3.4.4-1 Exhaust and fugitive dust emissions generated by construction activities at all phases of the proposed project, including excavation and grading, construction vehicle traffic, and wind blowing over exposed earth.

Emissions associated with project construction would be generated by wind blowing over exposed earth caused by earthmoving activities, construction workers traveling to and from the construction sites, heavy-duty construction equipment operation, and application of architectural coatings.

Dust from construction activities can cause impacts both locally and regionally. The dry climate of the area during the summer months, combined with the fine, silty soils of the region, create a high potential for dust generation. Increased dustfall and locally elevated levels of PM10 near the construction activity is expected. Depending on the weather, soil conditions, the amount of activity taking place at any one time, and the nature of dust control efforts, these impacts could significantly affect existing land uses near the project site.

Daily emissions generated during project construction would vary depending on the type and intensity of construction activity. The highest level of construction activity would occur during a combination of activities associated with mass grading, road construction, and building construction.

The URBEMIS2002 program was used to calculate construction emissions. Maximum daily construction emissions were estimated over the entire construction process. Table 3.4-9presents estimated maximum construction emissions. The most important would be dust from earthmoving activities, NOx from construction vehicle exhaust, and ROG from architectural coatings application. Maximum construction-related emissions of ROG, NOx, CO and PM10 will result in a ***significant and unavoidable impact.***

Table 3.4-9
Forest Ranch Construction Emissions

(Emissions in Pounds per Day)

	ROG	NOx	CO	PM10
Construction (Maximum)	961.99	723.16	807.82	233.71
PCAPCD Standards	82	82	550	82
Construction Significant?	Y	Y	Y	Y

Mitigation Measure

Implementation of the following measures will reduce construction-related air quality impacts, but not to a level that is *less than significant:*

3.4.4-1a. *The applicant shall require construction contractors to submit to the District and receive approval of a Construction Emission/Dust Control Plan prior to groundbreaking. At a minimum, this plan shall include the following measures:*

a. Water exposed earth surfaces as necessary to eliminate visible dust emissions (at least one water truck shall be available for every three pieces of earthmoving equipment);
b. Suspend grading operations when fugitive dusts exceed District Rule 228 Fugitive Dust limitations;
c. Pave, use gravel cover, or spray a dust control agent on all haul roads;
d. Reduce speeds on unpaved roads to 15 mph or lower (this speed shall be posted);
e. Clean earthmoving construction equipment with water once daily, and clean all haul trucks leaving the site;
f. Cover all trucks hauling soil, sand, and other loose materials to ensure that all trucks hauling such materials maintain at least two feet of freeboard;
g. Institute measures to reduce wind erosion when site preparation is completed;
h. Install sandbags or other erosion control measures to prevent silt runoff onto public roadways;
i. Spread soil binders on unpaved roads and employee/equipment parking area;
j. Wet broom or wash streets if silt is carried over to adjacent public thoroughfares;
k. Install wheel washers or wash all trucks and equipment leaving the site;
l. Provide paved or grass-covered areas for construction employee vehicle parking; and
m. Designate a person or persons to monitor the dust control program as approved by the PCAPCD, and to order increased watering, as necessary, to prevent the transport of dust offsite. This designee's duties shall include holiday and weekend periods when work may not be in progress.

For project components that would not be constructed/developed immediately following the mass-grading phase, the following dust control measures shall also be implemented:

n. Apply chemical soil stabilizers or commence reestablishment of ground cover to construction areas within 96 hours of completing grading activities;

o. Develop and implement a wind erosion monitoring program for areas which will remain inactive for extended periods; this program should at a minimum provide for weekly monitoring of inactive sites to assess the effectiveness of wind erosion controls.

p. No open burning of removed vegetation during infrastructure improvements. Vegetative material should be chipped or delivered to waste to energy facilities.

q. Operational water trucks shall be onsite at all times. Apply water to control dust as required per District Rule 228.

3.4.4-1b. *The applicant shall require the contractor to reduce NOx and ROG emissions by complying with the construction vehicle air pollutant control strategies developed by the PCAPCD. The contractor shall include in the construction contracts the following requirements or measures shown to be equally effective:*

a. Construction equipment operators shall shut off equipment when not in use to avoid unnecessary idling. Generally, vehicle idling shall be kept below 5 minutes.

b. Contractor's construction equipment shall be properly maintained and in good working condition.

c. Construction equipment exhaust shall not exceed PCAPCD Rule 202 (Visible Emissions) limitations.

d. The prime contractor submit to the District a comprehensive inventory (i.e. make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower of greater) that will be used an aggregate of 40 or more hours for the construction project. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the District with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

e. An enforcement plan shall be established to weekly evaluate project-related on-and-off- road heavy-duty vehicle engine emission opacities, using standards as defined in California Code of Regulations, Title 13, Sections 2180 - 2194. An Environmental Coordinator, CARB-certified to perform Visible Emissions Evaluations (VEE), shall routinely evaluate project related off-road and heavy-duty on-road equipment emissions for compliance with this requirement. Operators of vehicles and equipment found to exceed opacity limits will be notified and the equipment must be repaired within 72 hours.

f. Construction contracts shall stipulate that the prime contractor shall provide a plan for approval by the District demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 30 percent NOx reduction and 45 percent particulate reduction

compared to the most recent CARB fleet average. The District should be contacted for average fleet emission data. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available

g. Construction contracts shall include language that prohibits the use of all heavy-duty off-road diesel equipment on forecast Spare the Air days.

h. Use low sulfur fuel for stationary construction equipment.

i. Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.

j. Use low emission on-site stationary equipment.

3.4.4-1c. *Construction contractors shall be required to use low-VOC architectural coatings and asphalt in compliance with District Rules and Regulations. Contractors shall also be required to fuel stationary construction equipment with low-sulfur fuels, and use existing power sources (e.g., power poles) or clean fuel generators in place of temporary diesel power generators.*

3.4.4-1d. *Construction contractors shall be required to provide management of construction traffic. The contractor shall include in the construction contracts the following requirements:*

a. Contractors shall provide temporary traffic control during all phases of construction activities to improve traffic flow (i.e., flag person);

b. Contractors shall configure construction parking to minimize traffic interference;

c. Contractors shall schedule construction activities that affect traffic flow to off-peak hours (e.g., between 7:00 p.m. and 6:00 a.m. and between 10:00 a.m. and 3:00 p.m.);

d. Contractors shall reroute construction traffic off congested streets;

e. Contractors shall provide dedicated turn lanes for movement of construction equipment on- and off-site.

f. Employ construction activity management techniques, such as: extending the construction period outside the ozone season of May through October; reducing the number of pieces used simultaneously; increasing the distance between emission sources; reducing or changing the hours of construction; and scheduling activity during off-peak hours.

g. Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service.

3.4.4-1e. *Construction contracts shall require contractors to implement ridesharing programs for construction employees traveling to and from the site. This requirement shall be included as a note in all project construction plans. The trip reduction plan is to achieve 1.5 AVR for construction employees.*

Impact 3.4.4-2 Construction activities could result in release of naturally-occurring asbestos.

A concern associated with construction activities in the Sierra foothills is the potential presence of natural-occurring serpentine rock and soils, which contain asbestos. Asbestos is classified as a known human carcinogen by state and federal health agencies. Asbestos fibers are freed from the rock or soil when it is crushed or broken and through natural weathering processes. The California Department of Conservation, Division of Mines and Geology, has prepared a statewide map of areas likely to contain naturally-occurring asbestos. The project site is indicated as being likely to contain naturally-occurring asbestos.[1]

Soils studies of the project area have not been conducted, nor has it been determined what areas would be disturbed. Impacts related to naturally-occurring asbestos during construction are therefore considered ***potentially significant***.

Mitigation Measure

Implementation of the following measure will reduce the release of naturally-occurring asbestos, to a level that is *less than significant:*

3.4.4-2. *The applicant will be required to comply with the statewide Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, And Surface Mining Operations. Prior to approval of a tentative map, an implementation plan to comply with this ATCM should be developed and approved.*

Impact 3.4.4-3 Operation of the proposed Forest Ranch project will result in the generation of both mobile and stationary source air pollutants.

Project operation will introduce stationary, area, and mobile sources of criteria air pollutant emissions to the study area. The primary area and stationary sources will include residential gas heaters, residential woodstoves/fireplaces, residential landscaping equipment, and commercial landscape maintenance equipment. Other area source emissions will include those from residential barbecues and consumer product use. Mobile sources will include exhaust emissions from motor vehicles (including recreational vehicles) and re-entrained dust emissions from motor vehicle travel on paved roads. Estimated emissions for area sources and vehicular emissions are shown in Table 3.4-10 for development under existing zoning and with the proposed project. This impact will be ***significant and unavoidable from the project alone and cumulatively.***

Table 3.4-10
Forest Ranch Permanent Emissions for Existing Zoning and Project at Buildout
(Emissions in Pounds per Day)

Existing Zoning				
Area Sources	ROG	NOx	CO	PM10

[1] California Department of Conservation, Division of Mines and Geology, A General Location Guide for Ultramafic Rocks in California- Areas More Likely to Contain Naturally-Occurring Asbestos, August 2000.

Existing Zoning				
Natural Gas	0.52	6.68	2.84	0.01
Woodstoves	139.45	21.88	1,117.45	182.29
Fireplaces	597.01	6.78	658.53	90.20
Consumer Products	26.08	-	-	-
Total Area Source	763.05	35.34	1,778.82	272.50
Vehicular	ROG	NOx	CO	PM10
Residential	31.98	56.08	391.57	47.82
Total Vehicular	31.78	56.08	391.57	47.82
Total Operational Emissions	794.83	91.42	2,170.39	320.32
Proposed Project				
Area Sources	ROG	NOx	CO	PM10
Natural Gas	2.25	29.11	12.38	0.06
Woodstoves	605.17	94.93	4,849.29	791.07
Fireplaces	2,590.77	29.41	2,857.76	391.44
Consumer Products	113.16	-	-	-
Total Area Source	3,311.35	153.45	7,719.43	1,182.57
Vehicular	ROG	NOx	CO	PM10
Residential	140.62	242.84	1,633.00	116.15
Golf Course	6.05	9.63	72.34	4.89
Medical/Dental	3.91	5.35	42.02	2.63
Office/Professional	1.95	2.97	22.03	1.53
Total Vehicular	152.53	240.78	1,769.39	125.19
Total Operational Emissions	3,463.88	394.23	9,488.82	1,307.76
PCAPCD Standards	82	82	550	82
Operational Significant?	Y	Y	Y	Y

Mitigation Measure

Implementation of the following measures will reduce air quality impacts, but not to a less than significant level. Impacts will remain *significant and cumulative.*

3.4.4-3a. *Potential effects of air pollutant emissions to the study area shall be partially mitigated by:*

1) Promoting low-emission energy use by requiring residential design features that accommodate and encourage use of alternative energy sources. The following measures shall be in future project design:

- *All new residential fireplaces shall have propane hookups installed and the conditions of approval and CC&R's for the project shall explicitly forbid the installation of any non-EPA Phase 2 certified wood burning devices or masonry fireplaces within the single-family residences. Wood-burning or*

Pellet appliances shall not be permitted in multi-family developments. Only propane fired, fireplace appliances are permitted. The maximum particulate matter emission potential for each residence shall not exceed 7.5 grams per hour.

- *All new residences shall have electrical outlets at the front and back for electrical yard equipment installed.*
- *All new residences shall have low-NOx hot water heaters per PCAPCD Rule 246 installed.*

2) *Promote passive solar building design and landscaping conducive to passive solar energy use, as applicable in the forested areas of the project site (i.e., building orientation in a south to southeast direction where feasible, encouraging planting of deciduous trees on western sides of structures, landscaping with drought-resistant species, and including groundcovers rather than pavement to reduce heat reflection).*

3) *Implementation of the following measures:*
   - *Incorporate solar heaters in residences as feasible;*
   - *Include high-efficiency heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units; and*
   - *Include energy-efficient window glazings, wall insulation, and efficient ventilation methods on all new residential units.*
   - *The project CC&R's shall prohibit gasoline-powered golf carts onsite. The project shall purchase the lowest emission maintenance vehicles and equipment commercially available for the intended application at the time of purchase and/or replacement. The CC&R's for this project shall include this requirement.*
   - *The applicant shall provide a plan for on road use of electric golf carts/neighborhood electric vehicles..*
   - *The applicant shall provide equestrian, bicycle and pedestrian trails.*
   - *HVAC units shall be equipped with PremAir (or other manufacturer) catalyst system if available and economically feasible at the time building permits are issued. The PremAir catalyst can convert up to 70% of ground level ozone that passes over the condenser coils into oxygen. The PremAir system is considered feasible if the additional cost is less than 10 percent of the base HVAC unit.*

4) *In order to minimize "heat island" effects, require the developer to:*
   - *Require the use of high-albedo (low-absorptive) coatings on all roofs and other building surfaces.*
   - *Require businesses and residents to plant trees to shade buildings primarily on the west and south sides of the buildings. Use of deciduous trees (to allow solar gain during the winter) and direct shading of air conditioning systems shall be included, as applicable in the forested areas of the project site.*

- *Require businesses to pave all parking areas with a substance with reflective attributes (albedo = 0.30 or better) similar to cement concrete.*
- *All truck loading and unloading docks shall be equipped with one 110/208 volt power outlet for every two dock doors. Diesel trucks shall be prohibited from idling more than five minutes and must be required to connect to the 110/208 volt power to run any auxiliary equipment. Signage shall be provided.*

3.4.4-3b. *Bicycle usage shall be promoted by requiring the following:*

- *All non-residential projects shall provide bicycle lockers and/or racks.*
- *All non-residential projects with more than 10 employees per shift shall provide employee personal showers and locker facilities.*
- *All apartment complexes or condominiums without garages shall provide Class I bicycle storage.*

3.4.4-3c. *Transit usage shall be promoted as provided in Mitigation Measure 3.6.7. Payment of project's fair share transit fee to extend service to this area shall be provided.*

3.4.4-3d. *The project applicant shall implement an offsite mitigation program to offset the project's increase in Nitrogen Oxide, Reactive Organic Gas and Particulate Matter emissions. The applicant's offsite mitigation program must be approved by the Placer County Air Pollution Control District. In lieu of the applicant implementing their own offsite mitigation program, the applicant can choose to participate in the Placer County Air Pollution District Offsite Mitigation Program by applying an equivalent amount into the District program.*

Impact 3.4.4-4 Exposure of persons to odors from on-site wastewater treatment system operations and the equestrian center.

Although not a health hazard, odors from the collection, treatment, storage and land disposal of treated and untreated wastewater can adversely affect occupants of nearby residences, both on- and off-site. Odors from the proposed equestrian center can similarly affect residents. Impacts related to odors are ***potentially significant.***

Mitigation Measures

Implementation of the following measures may not totally eliminate odors, but will reduce them to a *less than significant level:*

3.4.4-4a. *The specific design and location of all wastewater collection and treatment facilities, effluent storage ponds and land disposal areas shall be reviewed and approved by the Placer County Environmental Health Division prior to construction. Wastewater collection and treatment facilities shall be constructed with odor containment, ventilation and scrubbing systems so that odors cannot be detected beyond the plant boundary. Emergency storage ponds shall be equipped with aerators and washdown facilities to control odor emissions. The Environmental Health Division may require*

certain wastewater collection and treatment equipment and facilities to be covered, if determined necessary to assure optimum odor control.

3.4.4-4b. *The wastewater treatment facility and the equestrian center shall be subject to PCAPCD Nuisance Rule (Rule 205):*

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which have a natural tendency to cause injury or damage to business or property.

3.4.4-4c. *At such time as an application is submitted for the equestrian center, conditions of approval shall be developed that address and control odors, including but not limited to a restriction on the maximum number of horses, specific design and location of facilities to reduce odor potential, and operating conditions for the regular maintenance of facilities and the removal of animal waste.*

3.5 CULTURAL RESOURCES

3.5.1 SETTING

A Heritage Resource Study was completed for the proposed project by Susan Lindstrom, Ph.D., Consulting Archaeologist. For this Program EIR, information gathered for the study is non-specific and limited to a records search of the existing archaeological inventory and initial contact and consultation with members of the local Native American community, the historical society and heritage personnel with the Tahoe National Forest Foresthill Ranger District. Archaeological fieldwork was limited to a cursory drive through the project area in the company of the project applicant, the president of the Foresthill Divide Historical Society, and members of the Todd's Valley Maidu-Miwok Cultural Foundation. No archaeological field reconnaissance was conducted. Dr. Lindstrom's report is included as Appendix G of this EIR.

The discussion of the physical and cultural background of the Forest Ranch project site is excerpted from the overview provided by Lindstrom (2000) for the Foresthill Divide Community Plan. Lindstrom's overview draws heavily from contexts presented in the "Historical, Architectural, and Archaeological Resources of Placer County, California" (Terhorst and Gerike 1992) and in work by Baker (2000), Baker and Shoup (1992), and Baker, Shoup and Brack (1993) associated with the Highway 124 Project. Further information is taken from Carlson's (1986) ethnographic overview and Markley and Henton's (1985) prehistoric overview of the Tahoe National Forest. Details regarding the physical and cultural setting of the Foresthill Divide are found in these sources and are not repeated here.

Physical Setting

The Forest Ranch project site is located on the Foresthill Divide, a long northeast-trending ridge system separating the North and Middle Forks of the American River. As one of the major east-west ridge systems of the north-central Sierra Nevada, the Divide would have provided relatively easy access for prehistoric populations moving east and west over the crest. However, the steep canyons and rugged terrain to the north and south of the Divide may have been a barrier to travel and trade. Prehistoric ridge top village sites may have been preferable to village locales along streams. Ridges were also the preferred locales for Euroamerican settlements and ranchlands.

The rocks underlying the Divide are part of the Mother Lode Belt and include slates and shales of the Mariposa Formation. The flat ridge of the Foresthill Divide is formed by a complex system of Tertiary channels capped by lavas that are included within the Mehrten Formation and categorized as andesite mudflows. The underlying ancient Tertiary river channels contain auriferous deposits that were the focus of hydraulic and drift mining for gold by incoming Euroamericans. The complex geology of the Foresthill Divide region also provided a variety of stone for prehistoric tool manufacture, including slate and schist, chert, and igneous and metamorphic materials.

The Mediterranean climate of the Foresthill Divide is characterized by hot summers and cool winters, with most precipitation falling during the winter as rain. The North and Middle Forks of the American River form the major hydrological features; fresh water sources are relatively abundant on top of the Divide. Rivers cut steep canyons up to 1,000 feet below the top of the Divide that presented major obstacles for both prehistoric and historic populations traveling off the Divide.

The project site spans an elevation roughly between 2,500 and 3,400 feet and encompasses several major life zones that gradually change with increasing altitude. Mountain ridges are colonized by mixed forests, oaks, shrubs, grasslands, and meadows – habitat for diverse faunal resources. The rich array of plants and animals were of subsistence and economic importance to both aboriginal inhabitants and incoming Euroamericans.

Prehistory and the Native American Period

Clear boundary determinations for Native American residents along the Foresthill Divide are confounded by the complete disruption of aboriginal cultures by early Euroamericans and of traditional practices involving inter-group trade, politics, marriage, and ritual. The Foresthill Divide lies firmly within the traditional territory of the Hill Nisenan (or Southern Maidu), a Penutian speaking group that inhabited the west-central Sierra Nevada. (Beales 1933; Level 1978; Littlejohn 1928). After historic contact, Northern Miwok, also Penutian speakers, may have resided here; Northern Miwok currently live on the Divide. The Hill Nisenan recognized three divisions within their group based on slight linguistic and cultural differences. The Foresthill people belonged to one of the subgroups with its “center of influence” at Auburn.

Environmental phenomena such as springs and drainages, unique geological outcrops, and different land surface exposures with variable slopes created extreme variety in the accompanying plant and animal communities upon which aboriginal populations depended. Like most hunters and gatherers, vegetable foods formed the subsistence baseline, although they used

a wide range of plant and animal species. Generally, the least productive time of the year for the Hill Nisenan was late winter-early spring. Hill Nisenan caught salmon during spring runs up the North and Middle Forks of the American River and their tributaries. Throughout the summer, groups gathered nuts and seeds, roots, berries, fungi, and greens. Expeditions to hunt large game took place within the higher elevations during the fall. Acorns became available in massive quantities in the autumn. Acorn eating is the hallmark of California Indians and they were the primary staple for those groups who inhabited the western foothills of the Sierra.

Areas encompassed by the project site were occupied on a permanent or semi-permanent basis, with higher elevations being inhabited at various times of the year by smaller groups that made seasonal movements in order to procure economic resources as they became available. Villages were usually placed on ridge tops and on large flats along major streams. Permanent villages are represented archaeologically by culturally enriched and darkened soils (or "midden") which contain artifacts, charcoal, organic debris, and/or house pit and dance house depressions. Villages hosted important social gatherings and religious ceremonies. Dances to celebrate seasonal events and honor ancestors and deities were held in large semi-subterranean roundhouses. (The Todd's Valley Miwok-Maidu Cultural Foundation is currently constructing a new roundhouse near Foresthill.) Hill Nisenan villages consisted of from four to 12 separate dwellings, housing a nuclear or polygamous family. Larger social organizations, called "tribelets," were formed by several villages uniting under a single chief. Tribelet boundaries were marked by natural ridges between streams.

Land use patterns, known from Nisenan protohistoric times, are generally consistent with interpretations derived from numerous archaeological investigations within Placer County (and a few excavations on the Foresthill Divide). The archaeological record indicates a shift from sparsely populated hunting-based societies in earlier times to growing populations with increasing reliance on plant foods by the time of historic contact. Also, paleoclimates may have been warmer and drier in the past, allowing for year-round occupation of the higher elevations. Occupation along the Divide may extend earlier than 5000 years ago and continue up to the time of historic contact. Between about 7000 and 5000 years ago, during the Early Archaic Period, climates were warmer and drier and drying lowlands may have prompted human populations to travel to upland resource zones where prehistoric economies incorporated seed processing and fishing, as well as hunting. During the Middle Archaic period, dating from about 5000 to 1300 years ago, climates became moister and, with a return to more optimal living conditions, population densities increased. More intensive prehistoric use of the Foresthill Divide by mixed-mode foragers/collectors began during this period. The Late Archaic period, about 1300 years ago to historic contact, has been equated with the Nisenan culture, as described in ethnographic accounts written by early anthropologists. This period is marked by an overall drying trend, with cool and moist episodes alternating with extended severe drought. Throughout the Late Archaic, prehistoric populations continued to increase.

The largest available body of ethnographic data on the Nisenan was collected between the 1890s to the 1930s. Most of this information was gathered after aboriginal populations had been substantially reduced and the process of acculturation was well underway. Nisenan territory encompassed the heartland of one of the most important mineral resource zones in the western United States, the Sierra Nevada Mother Lode. By the 1850s Euroamericans had permanently

occupied their territory and changed traditional lifeways. Mining, lumbering, grazing, commercial fishing, tourism, and the growth of settlements disrupted traditional Indian relationships to the land. As hunting, fishing, and gathering wild foods were no longer possible, they were forced into dependency upon the Euroamerican settlers.

Little is known about the period of initial contact on the Divide between Indians and Euroamericans. Resistance to white incursions occurred, mostly in the form of Indian raids upon the stock and camps in desperate attempts to find food. Disruption of subsistence patterns, starvation, disease, and violence resulted in a severe decline in Native populations and abandonment of villages. The federal government's Indian "relocation" policies in California were set in motion during the 1850s with the creation of rancherias and reservations. Nisenan either stayed on reservations or rancherias and married into their own or into other Indian tribes, or became assimilated into the dominant Euroamerican society. Nonetheless, reports of early anthropologists and census records indicate that some Nisenan remained in their home places. Nisenan recall place names for several village locations on the Divide and in the project vicinity (Littlejohn n.d.; a918): *Hem'hem* near Yankee Jim's and *O'pok pok* at Todd's Valley, etc. A Nisenan cemetery is located in the Spring Garden/Todd's Valley area and continues to be used and maintained. Today, significant numbers of Nisenan are dispersed throughout many Sierran foothill communities. On the Foresthill Divide, interest in maintaining traditional ways is reflected in the revival of dances, basketry skills and new construction for a ceremonial roundhouse near Todd's Valley. The Todd's Valley Miwok-Maidu Cultural Foundation has been established within the last seven years and the group is in the process of gaining official tribal recognition from the U.S. government (Brown, Drone, Portrius, Suehead, and Zellner, pers. comm., 2002). Members conduct monthly meetings. The group is committed to preserving their heritage and reestablishing their presence and traditional practices on the Divide. Miwok-Maidu plant managers are actively involved in harvesting plants of traditional importance and are concerned about the disappearance of oak stands with their prized acorn crop.

Historic Period

Gold Rush Period (1848-1859)

A few months after John Marshall's gold discovery in January of 1848 at Sutter's Mill in Coloma, Claude Chana found gold in Placer County in Auburn Ravine near Ophir. Thousands of gold seekers soon arrived and within a few years settlements were permanently established in Placer County. The first prospecting along the Foresthill Divide was confined to the shallow placers along gravel bars and the beds of running streams where younger Quaternary stream deposits eroded the gold-bearing gravels laid down in earlier times. These shallow deposits were initially mined by a variety of simple surface hand mining techniques that involved the basic principle of agitating gold-bearing gravel in water-filled containers. Early gold extraction devices include gold pan, rocker, long tom, and sluice box.

Older Tertiary Gravels, such as those formed by the ancestral American River that drains the Foresthill Divide, were laid down by larger and slower Sierra Nevada rivers with gradual slopes. These huge deposits of ancient, loosely cemented gold-bearing gravels are more deeply buried and required more sophisticated techniques in their extraction. One method, ground sluicing,

employed gravity flows of water aided by pick and shovel to break up deposits. Hydraulicking was a more powerful form of ground sluicing, using water under pressure to dislodge and direct gold-bearing deposits into sluices where gold was trapped. "Coyoting" and later, more elaborate drift mining techniques, both employed horizontal or vertical excavations sunk into the ground to reach the gold bearing gravels.

The majority of mining on the Foresthill Divide was accomplished by drift mining, using an adit and/or a shaft to reach the gold-rich ancient river channel lying deep under the ridge. Gold was "accidentally" discovered within the deep river gravels below Foresthill after a landslide exposed nuggets of gold in the debris. By 1857, there were 25 drift operations in the area, most tunnels entering into the gravel deposits from the east side of the Divide.

To accommodate simple mining techniques and to keep pace with the innovations of increasingly more sophisticated and powerful hydraulic methods, which demanded enormous volumes of water, an elaborate system of ditches, flumes and storage reservoirs was put in place. Financial backing requiring larger capital reserves prompted the development of ditch companies that directed their water delivery and storage facilities to major diggings. Ditches and flumes headed in high elevation reservoirs and wound their way down mountainsides.

Placer mines far outnumbered quartz lode mines on the Foresthill Divide. The "Mother Lode" is the popular name for the main quartz vein that is associated with the intrusion of the Sierra Nevada batholith. This single lode is split into a number of seams that underlie the quartz lode region within western and central Placer County. These gold-quartz veins occur along contacts between granite and metamorphosed sedimentary rocks, volcanics and deeply weathered serpentinite. These and other hardrock sources were tapped by excavating tunnels with drills and dynamite in order to follow gold bearing quartz veins. Rock was transported out of the tunnels on ore carts and then transferred to stamp mills where the rock was crushed to release the gold ores from the surrounding material. The pulverized ore was then treated to remove impurities.

After the discovery of gold along the Foresthill Divide at Birds' Store in 1850, communities quickly sprang up around the mines. By 1850, wagons traveled up onto the Divide, following old Indian trails, and pioneered the main travelway that became today's Foresthill Road (Forest Highway 124). Foresthill (California Historical Landmark No. 399) was established in the fall of 1850 by M. Fannan, James Fannan and R.S. Johnson as a small trading post. By 1852, Foresthill became the business and transportation center of the Divide and survives as the only remaining viable community.

Throughout this early gold rush period, logging, agriculture, and transportation were adjuncts in support of the mining industry. Many migrants who flocked to the County had no intention of working the mines, but rather of working the miners, an equally lucrative prospect with burgeoning populations needing shops and services, food and clothing, transportation, and building materials.

Sawmills immediately sprang up around mining camps to supply lumber for mine timbering and building materials for the growing settlements. The mills at Foresthill and Todd's Valley were in operation in the 1850s.

The growth of gold rush era camps and towns stimulated the development of transportation systems based on supplying mines and camps with needed mail, express and provisions. By the 1850s, the route along the current Forest Highway 124 was established as the main travelway between Auburn and the Foresthill Divide. The original road undoubtedly followed an earlier Native American trail.

A heterogeneous population composed of people from every corner of the world crowded into the Sierra mining districts, as reflected in the ethnic names assigned to some of the earliest camps along the Foresthill Divide. Native Americans played an important and little acknowledged part in the earliest period of the gold rush. Immigrants from Hawaii, Latin America, Europe, Asia, and elsewhere were initially welcomed because of their knowledge of mining techniques, but anti-foreign feelings hampered their economic opportunities in Placer County, and many groups were gradually forced out of the mines altogether into other economic pursuits. The mingling of these different ethnic groups and nationalities has produced a unique cultural collage from which the heritage of the Foresthill Divide is drawn.

Post-Gold Rush Period (1859-present)

The years following 1859 are marked by technological changes that prompted a shift in the organization and financial arrangements of the mines. The era of the self-sufficient, itinerant prospector with pick and shovel gave way to a system based increasingly on cooperation between groups of miners and ultimately to the miner as wage earner employed by large multidivisional corporations tied to the national and world economy. National and foreign capitalists, initially investing only in mining, now poured their money into logging, transportation and water development, enterprises that paralleled mining interests. The period after 1859 can also be characterized by a change in settlement patterns, away from the "boom-bust" camp structure common to the early mining frontier, and the growth of a more mature, stable, and diversified economy and social structure that were not based on mining alone.

The beginning of this period was heralded by a drop in the county's mining economy, as mining in the American River basins was curtailed by the exodus of miners and capitalists to the Comstock rush of 1859-1865. By the late 1860s, the Placer County mines were again productive. Until 1884, when the hydraulic mines were restrained from dumping their tailings into the streams, the largest hydraulic mines in the world were operated here, providing the country's largest source of gold.

From the turn of the century to 1917, statewide gold production rose. With the restrictions imposed on hydraulic mining, lode mining, drift mining and gold dredging supplied the principal sources of gold. Inflation following World War I caused the continual decline of gold production until the early 1930s, when the prices increased during the depression years; gold output in the state was nearly as high as it had been during the gold rush. Thousands of urban unemployed rushed to the Sierran gold fields to prospect with pan and rocker. The revival of mining infused communities along the Foresthill Divide with new life and stimulated non-mining industries such as logging and agriculture. Many mines were shut down during World War II and reopened soon afterward, but with decreasing productivity. Gradually, outside investment

capital was funneled away from mining into California agriculture and real estate. The Placer County gold mining industry has not since recovered.

Foresthill's timber industry sustained the community after the decline of mining operations. However, the local timber industry was unable to compete with similar operations along the route of the transcontinental railroad. The onset of World War II prompted an increase in lumber production on the Foresthill Divide, as wartime demand stimulated the harvest of remaining large stands along the Divide.

As with lumber and other county industries, farm production for outside markets came after 1859. Along the Foresthill Divide, agriculture/ranching centered on the ridge tops and on orchard crops, hay production, and seasonal stocking of cattle.

The late 19th century brought a surge of interest and appreciation of wilderness recreation and forest lands increasingly became the relocation focus for retirees during the 20th century. The Tahoe National Forest promoted the recreational potential of its lands, which were enhanced by Civilian Conservation Corps crews between 1933 and 1943. Within the last few decades, recreational interest in the region has dramatically increased. This interest is accompanied by a rise in incoming residents who desire to live in an aesthetically pleasing and historically rich area. The enhancement and interpretation of selected historic sites and buildings have boosted community economies throughout the Foresthill Divide in the form of recreational tourism.

Data Sources

In order to determine previously recorded heritage resources in the project area, archaeological site records, held at the archaeological inventory for the North Central Information Center (NCIC), California State University at Sacramento (CSUS) were reviewed. The NCIC maintains records of archaeological sites inventoried in Placer County, including the Foresthill Divide. Basic heritage resource inventories reviewed at this facility include: the National Register of Historic Places (through current volume), the State of California Historic Landmarks and Points of Historic Interest (through current listings), Historical, Architectural and Archaeological Resources of Placer County (12/1992), Foresthill Divide Historic Resources Survey (4/20/1991), Directory of Properties in the Historic Property Data File for Placer County (1/13/00), Survey of Surveys – A Summary of California Historical and Archaeological Research Surveys (California Department of Parks and Recreation 1989), California Office of Historic Preservation Archaeological Determinations of Eligibility for Placer County (1/28/00), and Caltrans Bridge Survey (10/31/89). Other local histories and secondary sources consulted are listed in the references cited section of this EIR and in Lindstrom (2000).

Prior Heritage Resource Investigations

Archaeological investigations on the Foresthill Divide, or in western Placer County in general, are limited. Important archaeological sites have been studied within the Highway 124 corridor and the proposed Auburn Dam Project area. Other minor archaeological excavations have been conducted on the Tahoe National Forest at elevations generally above 3,500 feet and outside the

project site. Recorded sites on the Divide indicate a long time sequence of use; however, there have been few excavations to provide details and in-depth information.

Archaeological Coverage

A records search (NCIC File No. PLA-02-64) at the North Central Information Center (NCIC) at California State University at Sacramento (CSUS) disclosed that the project site has been subject to archaeological coverage by registered professional foresters (RPF) as part of timber harvest plans (THPs) (Ferrier 1997; Funk 1996, 1997, 2000; Garcia 1995; Stewart 1993, 1994; Tate 1995). Prior archaeological coverage is shown on Figure 3.5-1. Archaeological coverage strategies, which range from complete to cursory examinations, have not been consistently presented in these archaeological reports, however. The California Department of Forestry (CDF) forest practice rules require RPFs to submit archaeological reports within 30 days of a THP approval. These reports are then reviewed and "spot" field inspected by CDF archaeologists and copies of the final report are filed with the appropriate information centers (e.g., NCIC-CSUS). RPFs are para-professional archaeologists and conduct archaeological surveys during the course of their timber stand evaluations. Consequently, the thoroughness of the ground surface inspection and the quality of reporting are variable and reports are evaluated on an individual basis.

Known Heritage Resources

Prehistoric Resources. No Native American resources have been inventoried within the project site.

Historic Resources. RPFs Funk (1996, 1997, 2000), Stewart (1993, 1994) and Tate (1995) have recorded a total of 27 historic resources within the project site, including 10 mine ditches, five mine shafts, six mine tunnels, two mine ponds, one mine "glory hole", two house sites, and a portion of the Foresthill town dump. Archaeological site location maps contained within these THP reports also show a number of roads and landforms (mining?) These resources are unnumbered and not keyed to heritage resource descriptions. Their historic status is unknown.

Heritage Resource Sensitivity. Some idea of expected heritage resource sensitivity serves as a general guide to advanced planning by providing a means of estimating the probable likelihood of sites occurring within a given area proposed for development. Sensitivity ratings indicate the degree of probability of finding sites in a specific project area and the relative number and types of sites expected. In this way, project sponsors can anticipate, at the outset, the extent to which heritage resources may become an issue for consideration later on.

Heritage resource sensitivity predictions for the Foresthill Divide Community Plan area, in which the project site is located, are presented in Lindstrom (2000). Archaeological expectations have been derived from the collective results of many archaeological surveys in similar environments throughout the region, and incorporate the obvious correlation between heritage themes, archaeological site locations and basic environmental variables (water, level ground, etc.). According to heritage resource location criteria detailed in Lindstrom (2000), the Forest Ranch project site is highly sensitive to contain Euroamerican historic resources, and moderately

sensitive to contain Native American resources. It is likely that future intensive and systematic archaeological surveys of the project site would yield more heritage resources than have been previously identified.

Confidentiality. In order to prevent vandalism and unauthorized artifact collecting, and to protect landowners from trespass, the locations of heritage resources are kept confidential. California Code §6254.10 exempts archaeological site information from the California Public Records Act, which requires that public records be open to public inspection. Location information is restricted and is not circulated as part of public documents, but is used for planning purposes only. Known archaeological site locations within the project site are plotted on a map in a confidential file on record with the Placer County Planning Department.

Traditional Native American Values. In additional to archaeological resources, the project site contains resources of traditional value to contemporary Native Americans (Brown, Drone, Portrius, Suehead, and Zellner, pers. comm., 2002). On a tour of the project site with members of the Todd's Valley Miwok-Maidu Cultural Foundation, a number of issues and concerns surfaced which should be taken into consideration during future project planning.

During the on-site tour, a number of native plants of importance to Maidu and Miwok plant specialists were identified (acorn, willow, mushrooms, hazelnut, etc.). Harvest and management of these plants are important to maintaining traditional subsistence and utilitarian practices. Members of the Todd's Valley Miwok-Maidu Cultural Foundation are concerned about the environment and the future of the Foresthill Divide. They want to preserve their traditional cultural knowledge, ancestral prehistoric sites, and native plant and animal resources.

The importance of maintaining ties to their traditional land base and social network by using the remaining resources in traditional ways is a prevailing theme. Local Native Americans lament the loss of significant plant resources and access to landscapes. They acknowledge the importance of using and honoring a resource to maintain its vitality, and of spiritual responsibility to the land. This preliminary study has indicated that continued visitation on ancestral lands and to archaeological sites is effective in prompting individual recall on everything from childhood experiences and memories to traditional skills, life works, and legends. Access into portions of the project site is important to accomplish these goals.

Placer County General Plan Policies

Recreational and Cultural Resources

5.D.3. The County shall solicit the views of the Native American Heritage Commission and/or the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or to sites of cultural importance.

5.D.6. The County shall require that discretionary development projects identify and protect from damage, destruction, and abuse, important historical, archaeological, paleontological, and cultural sites and their contributing environment. Such assessments

shall be incorporated into a countywide cultural resource data base, to be maintained by the Department of Museums.

5.D.7. The County shall require that discretionary development projects are designed to avoid potential impacts to significant paleontological or cultural resources whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less than significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance, and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American groups), historical, or paleontological consultants, depending on the type of resource in question.

Foresthill General Plan Goals and Policies

Cultural Resources

Goal 1: To preserve and enhance all significant historic and archeological sites and features.

1. Identify and protect from destruction and abuse all representative and unique sites.

Foresthill Divide Community Plan Policies

Resource Management Element

4.B.1-5 Solicit the views of the Native American Heritage Commission and/or the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or to sites of cultural importance.

4.B.1-7 Require that discretionary development projects identify and protect from damage, destruction, and abuse, important historical, archaeological, and cultural sites and their contributing environment. Such assessments shall be incorporated into a countywide cultural resource data base, to be maintained by the Department of Museums.

4.B.1-9 Areas of potential archaeological sensitivity shall be identified and catalogued by Placer County. Proposed development or public works projects within this area shall be required to undertake an archaeological survey prior to project approval. Proposed projects outside this area, in locations that have not been significantly disturbed, shall be referred to the California Archaeological Inventory, Northern Information Center, California State University, Sacramento for review and comment, and shall be required to undertake an archaeological survey prior to project approval upon recommendation by the Center.

4.B.1-14 The County shall require that the subdivision of property containing existing features of cultural or aesthetic merit be carefully designed to preserve these structures and, where appropriate, utilize them as a focal point of neighborhood design.

4.B.1-15 The County shall make the protection of significant cultural resources a priority over recordation and/or destruction.

3.5.2 IMPACTS AND MITIGATION MEASURES

Impact Evaluation Criteria

The integrity of the unique and varied heritage resources of the Foresthill Divide is being diminished daily by natural deterioration and the processes and pressures of growth. A variety of federal and state laws and local ordinances have been passed in the last few decades that are designed to protect archaeological resources. Several California public resource codes make it illegal to damage objects of historical or archaeological interest on public or private lands or to disturb human remains, including those in archaeological sites. It is illegal to possess remains or artifacts taken from Native American graves, and the Native American Heritage Commission must be consulted whenever Native American graves are found.

CEQA criteria of significance (§15064.5, State CEQA Guidelines) are one means of determining whether a site is a historical resource. For the purposes of CEQA, a significant heritage resource is one which:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

- Is associated with the lives of persons important in our past;

- 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

- Has yielded, or may be likely to yield, information important in prehistory or history.

In general, CEQA provides protection to "historical resources" and to "archaeological resources" that are "important" and/or "unique." An "important archaeological resource" must meet one or more of the above CEQA criteria. A "unique archaeological resource" must qualify under one of the first three CEQA criteria [Public Resources Code §21083.2(g)]. Public Resources Code §21084.1, which is part of CEQA, provides additional guidelines for the designation and additional protection of heritage resources classified as "historical resources." Resources that must be treated as "historical" are:

- Those resources listed in, or determined to be eligible for listing in, the California Register of Historical Resources;

- Those resources presumed to be historical in the absence of a preponderance of evidence indicating otherwise and that may be included in a local register of historical resources, as defined in Public Resources Code §5020.1(k);

- Those resources deemed significant pursuant to criteria set forth in Public Resources Code §5024.1(g); and/or

- Those heritage resources that an agency, going beyond the minimum call of statutory duty, has freely chosen to consider "historical."

Significant heritage resources are also acknowledged on a number of local registers. Eligibility criteria for the heritage registers generally incorporate the basic tenets of criteria established in the National Register and the California Register. However, these criteria have been modified in order to include a broader range of resources that better reflect the history of California at the local level. For example, the State Historic Landmark Program and the Point of Historic Interest Program also recognize buildings, sites, and objects of local or statewide importance.

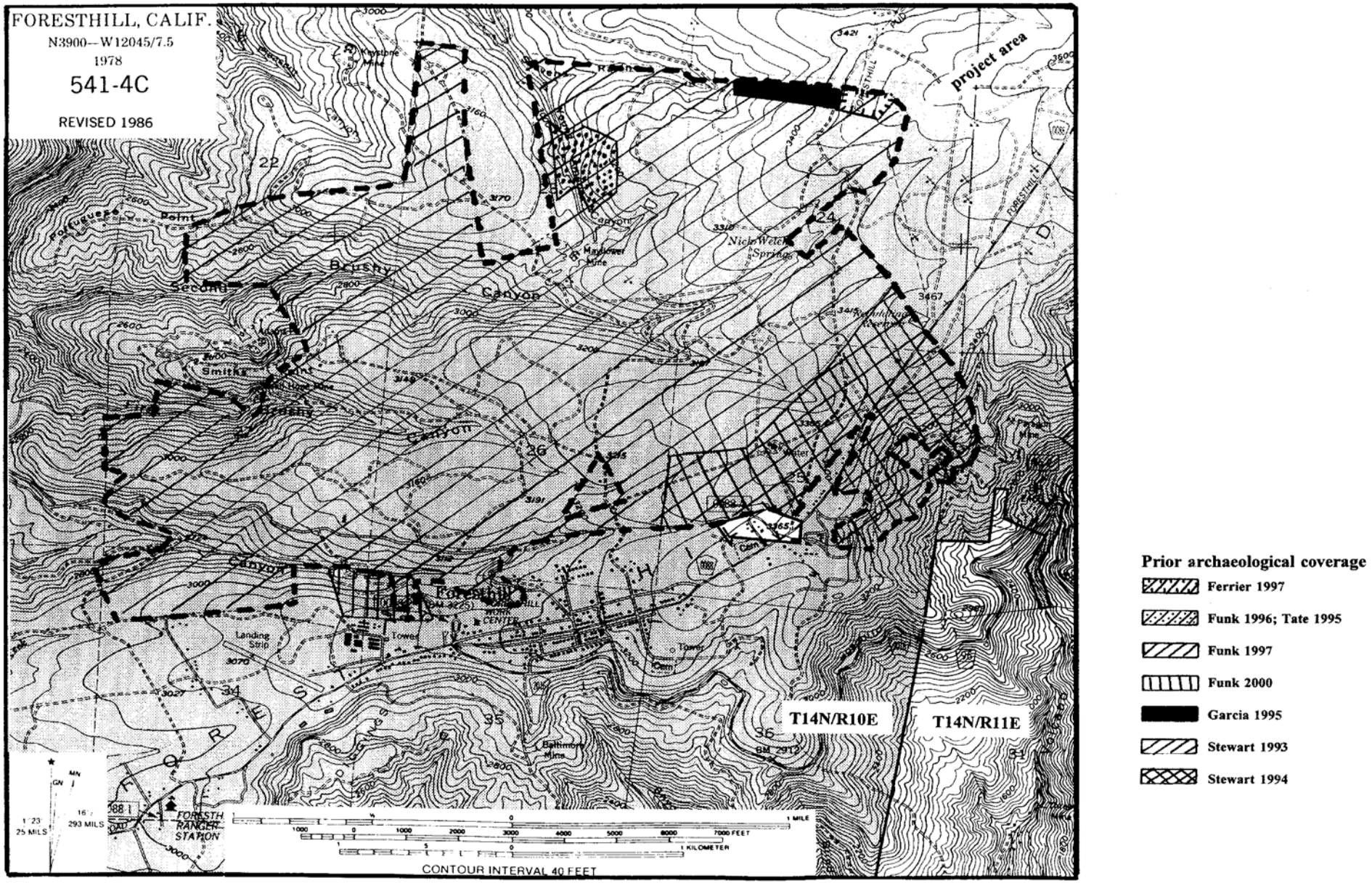
If a heritage resource is determined significant, effects of a project on the heritage property should be assessed. CEQA addresses the significance of impacts on historical and unique archaeological resources in §15064.5 of the State CEQA Guidelines. A property is impacted (or affected) if the project will diminish the integrity of a property's location, design, setting, materials, workmanship, feeling, association, or the quality of data suitable for scientific analysis. In particular, the archaeological remains left by the region's ancestral Native Americans require respectful treatment, along with the continued incorporation of contemporary Native American opinions, knowledge and sentiments into the planning process.

Development which is inconsistent with relevant Placer County General Plan and Foresthill General Plan policies should be considered potentially significant. Because the Foresthill Divide Community Plan is not yet adopted, but has been developed by the Foresthill Community Plan Team and is currently under review for possible adoption, development which is inconsistent with relevant proposed policies may be considered potentially significant, although it is recognized that policies may not be adopted in their current form.

Impact 3.5.1 Potential project-related effects on prehistoric or historic archaeological sites on the project site.

Several potential project-related effects are most likely to occur within the project site. These impacts may result from the disturbance or destruction of prehistoric or historic archaeological sites during ground-disturbing activities and/or general changes in land use that may affect the integrity of the setting of heritage properties by introducing incompatible visual or audible elements into the setting of a potentially significant resource. Indirect impacts such as vandalism may result due to increased public access into an area containing a site. These impacts are ***potentially significant..***

Mitigation Measure



Source: Forest Ranch Programatic EIR Heritage Resource Study, Foresthill, California, 2002

FOREST RANCH EIR

Archaeological Coverage

Figure 3.5-1

Implementation of the following mitigation measures will reduce impacts on cultural resources to a *less than significant level*:

3.5.1a. *Prior to any project-related ground disturbance, an archaeological field survey shall be conducted by professional archaeologists of the affected area, incorporating a systematic mixed reconnaissance strategy. Work shall be conducted according to the guidelines established by the State of California, Office of Historic Preservation. Artifacts, features and sites encountered shall be formally recorded on State of California archaeological forms. Findings shall be presented in a final report and presented to the County summarizing the natural and cultural setting and detailing the prefield and field methods employed, survey results, potential heritage resource significance, project impacts, and proposed mitigation measures required to be implemented.*

3.5.1b. *Prior to modification or destruction of an identified site, field-related mitigation activities shall be implemented in consultation with appropriate federal, state and local agencies and Native American groups. Mitigation measures can include project modification designed to protect and/or avoid a site. In lieu of project modification, a data recovery program can involve archival research, photo documentation and mapping, removal of a historic feature, collection of artifacts, recordation of features, test excavations, larger scale excavations, or some combination of these tasks, consistent with Section 15126.4 of the CEQA Guidelines. Interpretive development of heritage remains enhances resource protection, public education and enjoyment and may also be used as mitigation.*

3.5.1c. *Archaeological investigations shall be conducted in consultation with the Foresthill Divide Historical Society and the Todd's Valley Miwok-Maidu Cultural Foundation.*

3.5.1d. *To affirm the role of local Maidu and Miwok people as partners in the interpretation of their own archaeological past, a representative of local Native American interests shall be formally retained as a Native American consultant for future archaeological field surveys.*

Impact 3.5.2 Potential impacts to natural resources of importance to contemporary Native Americans, such as traditional plants.

The project site contains resources of traditional value to contemporary Native Americans. Access to traditional plants and related materials has become an increasing concern as more development displaces natural resource gathering areas of importance to contemporary Native Americans. During the on-site tour, a number of native plants of importance to Maidu and Miwok plant specialists were identified (acorn, willow, mushrooms, hazelnut, etc.). Harvest and management of these plants are important to maintaining traditional subsistence and utilitarian practices. Members of the Todd's Valley Miwok-Maidu Cultural Foundation are concerned about the environment and the future of the Foresthill Divide. They want to preserve their traditional cultural knowledge, ancestral prehistoric sites, and native plant and animal resources. Access into portions of the project site is important to accomplish these goals. These impacts are ***potentially significant.***

Mitigation Measure

Implementation of the following measures will reduce impacts on natural resources of importance to contemporary Native Americans to a *less than significant level:*

3.5.2a. *As part of an effort to sustain traditional cultural practices, portions of the project site that could be set aside for the harvest and management of traditional plants by Maidu and Miwok traditionalists and agreement for access shall be investigated. If indicated by the studies, future tentative maps shall include dedicated easements or other mechanism to allow access. Additional work shall involve an ethnobotanical survey, combining the skills of a project ethnobotanist and a Native American plant specialist, to locate and document traditional plant populations and to identify attributes sought and cultured by Maidu and Miwok collectors. Maidu and Miwok involvement in project revegetation efforts shall also be solicited.*

3.5.2b. *To insure the integrity of traditional plant resources and enhance their Native management, issues such as the application of herbicides, controlled burning, and dust abatement shall be considered in consultation with members of the Todd's Valley Miwok-Maidu Cultural Foundation.*

Impact 3.5.3 Cumulative impacts to Native American sites on the Foresthill Divide.

For millennia, Native Americans have resided on the Foresthill Divide and visited the project area. For over a century and a half, Euroamericans have influenced historic events here. Newcomers to the area who plan to visit or take residence in Forest Ranch should be aware of the past, not only as a matter of public education but also to enrich their personal association with the area. As development proceeds on the Divide in accordance with approved plans, cumulative impacts to the integrity and survival of Native American sites continue to occur. To deal with this trend, off-site and on-site mitigation measures to address the more generalized needs and concerns of local Native Americans and the general public should be considered. These cumulative impacts are ***potentially significant.***

Mitigation Measure

Implementation of the following mitigation measures will reduce cumulative impacts from the project on cultural resources in the Foresthill Divide area to a *less than significant level:*

3.5.3a. *Interpretive signs and panels, designation of natural-cultural areas, and the establishment of heritage demonstration sites shall be incorporated into plans for the Forest Ranch project.*

3.5.3b. *Project proponents shall enter an agreement with the Todd Valley Miwok-Maidu Cultural Foundation to provide funding for support of Foundation work directed at preserving and interpreting cultural resource sites on the Foresthill Divide. Such funding shall be based on*

the identification of a specific project that bears a relationship to the Forest Ranch area. Any agreement shall be subject to review and approval by the County of Placer.

3.6 CIRCULATION/TRANSPORTATION

This section analyzes the transportation and circulation impacts associated with development in accordance with the Forest Ranch project including roadways, freeway intersections, transit services, and pedestrian and bicycle facilities. As shown on the site plan (Figure 2-3), access to the project site is proposed via three locations onto Foresthill Road. The westernmost location accesses Foresthill Road via a connection to Yankee Jim's Road. The other two access points are directly onto Foresthill Road.

The scope of this traffic analysis is intended to conform to Placer County guidelines. The study includes assessment of the impacts of developing the site relative to current and future traffic conditions in the vicinity of the site. Toward this end, "Existing" traffic conditions have been evaluated through observation of current weekday daily traffic volumes, and "Existing" operating Levels of Service have been calculated. Probable project trip generation has been estimated. Utilizing an expected trip distribution, project-generated traffic was assigned to the study area street system. Levels of Service were then recalculated to determine the anticipated impacts of proposed development on "Existing" traffic conditions.

This study also analyzes the four key intersections in the vicinity of the Interstate 80/Auburn Ravine Road/Foresthill Road interchange, as well as the freeway mainline and the freeway ramps at that interchange. The analysis specifically reflects input received from Caltrans, District 3 in a January 28, 2002 letter from Jeffrey Pulverman, Chief - Office of Regional Planning, which is included in Appendix A of this EIR.

The intersection analysis focused on the AM and PM peak hours for existing conditions and the PM peak hour for cumulative conditions (representing the level of development anticipated in Placer County in the year 2020). For both time periods, analyses were performed both with and without buildout of the proposed Forest Ranch land uses.

In the future, impacts resulting from development of the project site were compared to the draft Foresthill Divide Community Plan traffic and circulation element that is currently under consideration. Improvements to offset project impacts have also been described. The full text of the traffic studies completed by kdAnderson Transportation Engineers and Martin Rivett & Olson is included as Appendices G and H, respectively.

3.6.1 SETTING

Streets and Highways

Functional Classification

Foresthill is served by a system of County roads. The existing roadways in the Foresthill area are primarily comprised of 2-lane rural facilities reflecting the rural nature of the County. Figure 3.6-1 illustrates these roadways. A description of some of the study area roadways is presented in the text that follows. kdAnderson Transportation Engineers conducted new daily traffic counts during May 2000, and these new counts are presented in the descriptions of the roadways. Figure 3.6-2 shows the existing daily traffic volumes.

Because of the special scenic qualities of certain areas in the Foresthill Area, the roads traversing these areas are recommended to be protected by special ordinances to enhance scenic view sheds. The entire portion of Auburn-Foresthill Road within the general plan area is designated in the Placer County Scenic Highways System.

Foresthill Road. Foresthill Road is a two-lane rural roadway. This roadway provides the principle link between Auburn and Foresthill. This road also serves as the main route along the divide and continues easterly to Soda Springs. This facility was under construction at the time the traffic counts were collected.

As illustrated on Figure 3.6-2, Foresthill Road currently carries 6,650 ADT east of the two-lane Foresthill Bridge. East of Happy Pines Drive, daily traffic volumes on Foresthill Road reach 4,876 ADT. West of Owl Hill Court, traffic volumes on Foresthill Road rise to 5,312 ADT.

East of the Foresthill community, daily traffic volumes on Foresthill Road drop significantly. West of Michigan Bluff Road, Foresthill Road currently carries 796 ADT with daily traffic volumes on Foresthill Road dropping to 481 ADT east of Michigan Bluff Road.

Portions of Foresthill Road have recently been reconstructed. The 2.4-mile stretch of road was the last of three phases to be completed under the Federal Highway Administration contract, which added passing lanes and widened many of the stretches of Foresthill Road between Auburn and Foresthill.

Yankee Jim's Road. Yankee Jim's Road is a narrow two-lane facility. This facility connects the community of Foresthill to Canyon Way just south of Colfax. Currently, Yankee Jim's Road carries 186 ADT north of Race Track Street.

Spring Garden Road. Spring Garden Road is a two-lane roadway. This facility extends between Foresthill Road in the south and Yankee Jim's Road in the north. Currently, Spring Garden Road carries 624 ADT.

McKeon-Ponderosa Way. McKeon-Ponderosa Way is a two-lane roadway. This facility originates at Foresthill Road in the north. Extending to the south, McKeon-Ponderosa Way provides access to the west end of the Todd Valley area before winding further south toward the Middle Fork American River Canyon. Currently, McKeon-Ponderosa Way carries 1,495 ADT just south of Foresthill Road.

Happy Pines Drive. Happy Pines Drive is a two-lane roadway that provides access to Todd Valley. Originating at Foresthill Road, Happy Pines Drive extends to the south through Todd Valley before terminating at Green Leaf Lane just south of Todd Creek. Currently, Happy Pines Drive carries 1,293 ADT.

Todd Valley Road. Todd Valley Road is also a two-lane roadway. Within the Todd Valley area, Todd Valley Road originates at Foresthill Road. Extending to the south, Todd Valley Road loops to the east and then back to the north to terminate at Foresthill Road. Currently, Todd Valley Road carries 2,663 ADT on the western loop just south of Foresthill Road. The daily traffic on the east portion of the loop is substantially lower with daily traffic volumes of 319 ADT just south of Foresthill Road.

Mosquito Ridge Road. Mosquito Ridge Road is a two-lane roadway in the vicinity of Foresthill community. Originating at Foresthill Road, Mosquito Ridge Road winds to the northeast into the Tahoe National Forest. Currently, Mosquito Ridge Road carries 230 ADT just east of Foresthill Road.

Race Track Street. Rack Track Street is a two-lane roadway. Originating at Foresthill Road in the west, Rack Track Street parallels the north side of Foresthill Road before terminating in the east at Yankee Jim's Road. Currently, Race Track Street carries 901 ADT east of Foresthill Road.

Main Street. Main Street is a two-lane roadway that parallels the south side of Foresthill Road within the community of Foresthill. Extending from Foresthill Road in the west, Main Street provides access to the local businesses before connecting to Foresthill Road at the east end of town. Currently, Main Street carries 691 ADT just east of Foresthill Road.

Michigan Bluff Road. Michigan Bluff Road is a two-lane roadway that provides access from the community of Michigan Bluff north to Foresthill Road. Currently, Michigan Bluff Road carries 200 ADT south of Foresthill Road.

North Fork Ponderosa Way. North Fork Ponderosa Way is a two-lane facility that originates at Foresthill Road west of Todd Valley. Extending to the north, North Fork Ponderosa Way winds its way toward Weimar.

Interstate 80 (I-80). Although I-80 is generally an east-west facility, it runs in a north-south direction through the study area. It is a major national highway facility and provides one of the key crossings of the Sierra Nevada Mountains. In the study area, I-80 provides three lanes in each direction.

Auburn Ravine Road. Auburn Ravine Road is a two-lane roadway that provides access to I-80 and the commercial area surrounding the freeway interchange. Within the study area, Auburn Ravine Road is an east-west facility, but west of Bowman Road it curves to the south. East of Lincoln Way, Auburn Ravine Road becomes Foresthill Road.

Bowman Road. Bowman Road is a north-south frontage road along the west side of I-80. It provides access to a number of commercial uses between Auburn Ravine Road and Bell Road to the north.

Lincoln Way. Lincoln Way serves as a north-south frontage road in the study area, running along the east side of I-80. It also provides direct access to downtown Auburn, a short distance to the south.

Roadway Operations

Level of Service Methodology

To assess the quality of existing traffic conditions in the Foresthill area, levels of service have been identified for area roadways. "Level of Service" is a qualitative measure of traffic operating conditions whereby a letter grade, "A" through "F", corresponding to progressively worsening traffic conditions is assigned to an intersection or roadway segment. Current evaluation methodology is dependent upon the physical characteristics of the roadway segment and can additionally be categorized with respect to "urban" or "rural" conditions. Table 3.6-1 presents a description of the Levels of Service associated with two-lane rural highways.

Table 3.6-1
Two-Lane Rural Highway Level of Service Descriptions

LOS	DESCRIPTION
A	Free Flow: Almost no platoons of three or more cars. Driver delayed no more than 30 percent by slow moving vehicles.
B	Free Flow: Some platoons form. Driver delayed no more than 45 percent by slow moving vehicles.
C	Stable Flow: Noticeable increase in platoon formation and size. Drivers delayed more than 60 percent by slow moving vehicles.
D	Approaching Unstable Flow: Heavy platooning. Passing becomes difficult. Drivers delayed no more than 75 percent by slow moving vehicles.
E	Unstable Flow: Intense platooning. Passing is virtually impossible. Drivers delayed more than 75 percent by slow moving vehicles.
F	Forced Flow: Queues form behind breakdown points.

The evaluation criterion for the study area roadways was taken from the draft Foresthill Divide Community Plan circulation element. The study roadways in the Plan area were classified based on the individual roadway characteristics. Table 3.6-2 presents the evaluation criteria for Levels of Service on each of these roadway classifications. Table 3.6-3, which follows, presents the existing operating Levels of Service and daily traffic volumes for each of these study roadways. As shown, currently all of the study roadways operate at Level of Service “C” or better.

Table 3.6-2
Evaluation Criteria For Level of Service

Roadway Capacity Class	Maximum Daily Traffic Volume Level of Service				
	A	B	C	D	E
1. Rural 2-lane-Rolling w/o Passing Lane	1,060	3,400	6,400	9,780	18,540
2. Rural 2-lane-Rolling w/39% Climbing Lanes	1,060	4,520	10,710	14,190	18,540
3. Rural 2-lane-Rolling w/40% Climbing Lanes	1,060	4,600	10,880	14,430	18,540
4. Rural 2-lane-Rolling w/43% Climbing Lanes	1,060	4,860	11,450	15,170	18,540
5. Rural 2-lane-Rolling w/71% Climbing Lanes	1,060	9,940	18,540	18,540	18,540
6. Rural 2-lane-Rolling (PCGP)	1,060	4,200	7,200	11,400	21,000
7. Rural 2-lane-Mountainous (PCGP)	800	2,400	4,200	7,200	14,000
8. Arterial – Low Access Control (PCGP)	7,000	10,500	12,000	13,740	15,000

Source: Placer County GP, kdANDERSON Transportation Engineers, based upon Highway Capacity Manual, Transportation Research Board, 1985.

Table 3.6-3
Existing Daily Roadway Traffic Volumes and Levels of Service

Roadway	Location	Criteria	Daily Traffic	LOS
Foresthill Road	Foresthill Bridge to Drivers Flat Rd	Rural w/39% climbing	6,650	C
Foresthill Road	Driver's Flat to Spring Garden Rd	Rural w/40% climbing	4,876	C
Foresthill Road	Todd Valley (W) to Idle Wheels Mobile Home Park	Rural w/43% climbing	5,312	C
Foresthill Road	Idle Wheels Mobile Home Park to Michigan Bluff Rd	Arterial	796	A
Foresthill Road	E. of Michigan Bluff Rd	Arterial	481	A
McKeon-Ponderosa	S. of Foresthill Rd	Rural w/out passing	1,495	B
Spring Garden Rd	N. of Foresthill Rd	Rural-Mountainous	624	A
Happy Pines Dr	S. of Foresthill Rd	Rural w/out passing	1,293	B
Todd Valley Rd (W)	S. of Foresthill Rd	Rural w/out passing	2,663	B
Todd Valley Rd (E)	S. of Foresthill Rd	Rural w/out passing	319	A
Mosquito Ridge Rd	S. of Foresthill Rd	Rural-Mountainous	230	A
Yankee Jim's Rd	N. of Race Track St	Rural-Mountainous	186	A
Main St	S. of Foresthill Rd	Arterial	691	A
Michigan Bluff Rd	S. of Foresthill Rd	Rural w/out passing	200	A
Race Track St	N. of Foresthill Rd	Arterial	901	A

Intersection Analysis Methodology

The following key intersections outside the Foresthill Divide Community Plan area but in the vicinity of the I-80/Auburn Ravine Road/Foresthill Road interchange were studied for this EIR as shown in Figure 3.6-3.

- Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp;
- Auburn Ravine Road/I-80 Westbound Off-ramp;
- Auburn Ravine Road/I-80 Eastbound Ramps; and
- Auburn Ravine Road/Foresthill Road/Lincoln Way.

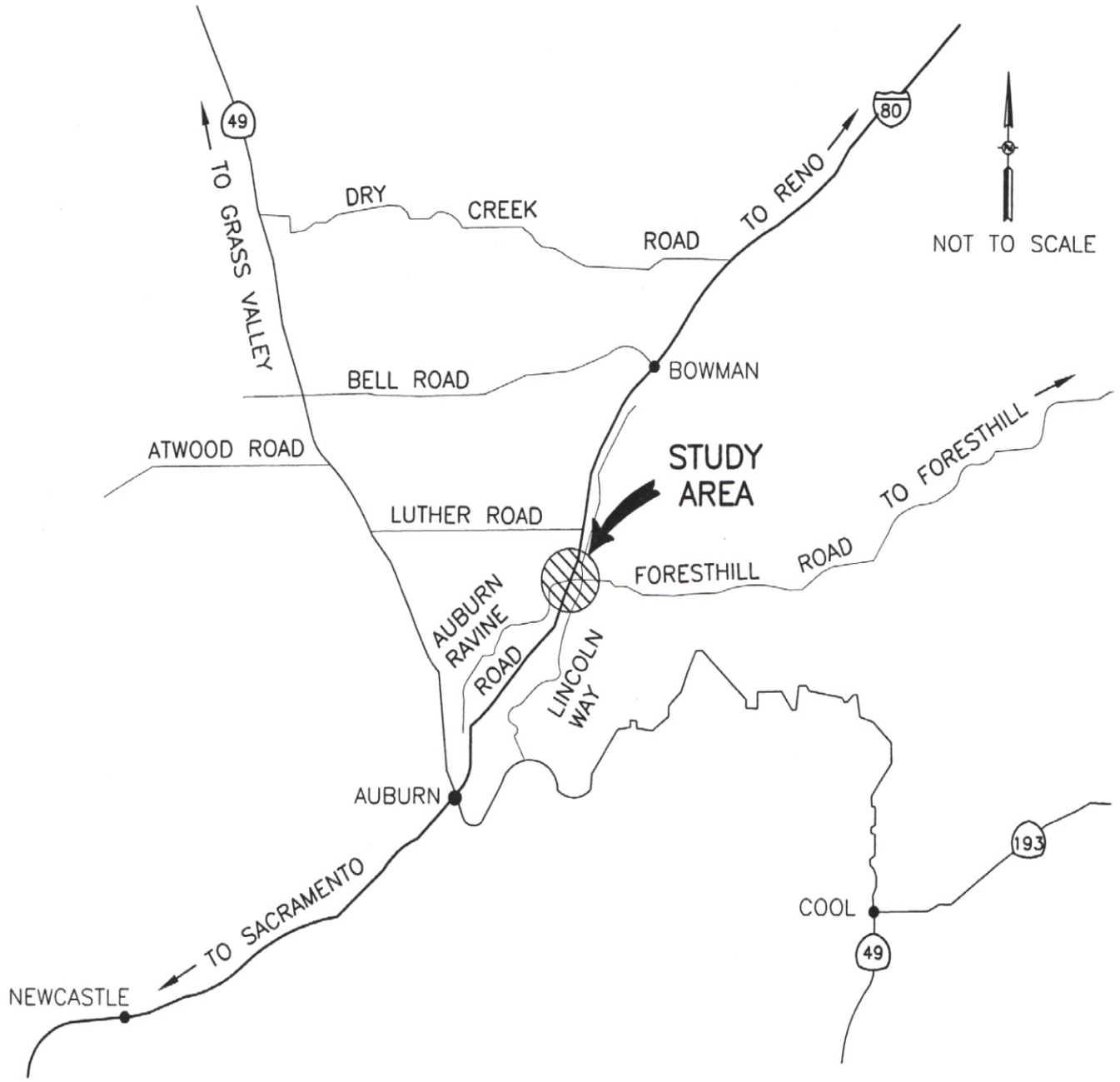
In addition, the study analyzed operations on the I-80 freeway mainline and at the ramp junctions at the Auburn Ravine Road/Foresthill Road interchange.

Intersection operations are typically described in terms of Level of Service (LOS), which is reported on a scale from LOS "A" (representing free-flow conditions) to LOS "F" (which represents substantial congestion and delay). Table 3.6-4 illustrates the Level of Service definitions for signalized intersections. The Level of Service designations are based on a quantitative calculation of delay at the intersection. Descriptions of operating conditions and delay values for signalized intersections are presented below. The technical calculations completed for this study are presented in the Appendix I.

To ensure a conservative analysis of conditions at the two freeway off-ramp intersections, it was assumed that right-turns-on-red are impossible from those off-ramps onto Auburn Ravine Road. Field observations revealed that, because of the short intersection spacing along this section of Auburn Ravine Road, standing queues from the adjacent intersections often effectively block the ability of such right turns to be made. At the I-80 westbound off-ramp, the queues extend eastward from Bowman Road, while at the I-80 eastbound ramp, queues generated at the Auburn Ravine Road/Foresthill Road/Lincoln Way intersection regularly extend back to, and even through, the off-ramp intersection.

Table 3.6-4
Signalized Intersection - Level of Service Definitions[1]

Level of Service	Description	Average Control Delay (Seconds/Vehicle)
A	Very low delay. Most vehicles do not stop.	$\leq$ 10.0
B	Slight delay. Generally good signal progression.	10.1 – 20.0
C	Increased number of stopped vehicles. Fair signal progression.	20.1 – 35.0
D	Noticeable congestion. Large proportion of vehicles stopped.	35.1 – 55.0
E	Operating conditions at or near capacity. Frequent cycle failure.	55.1 – 80.0



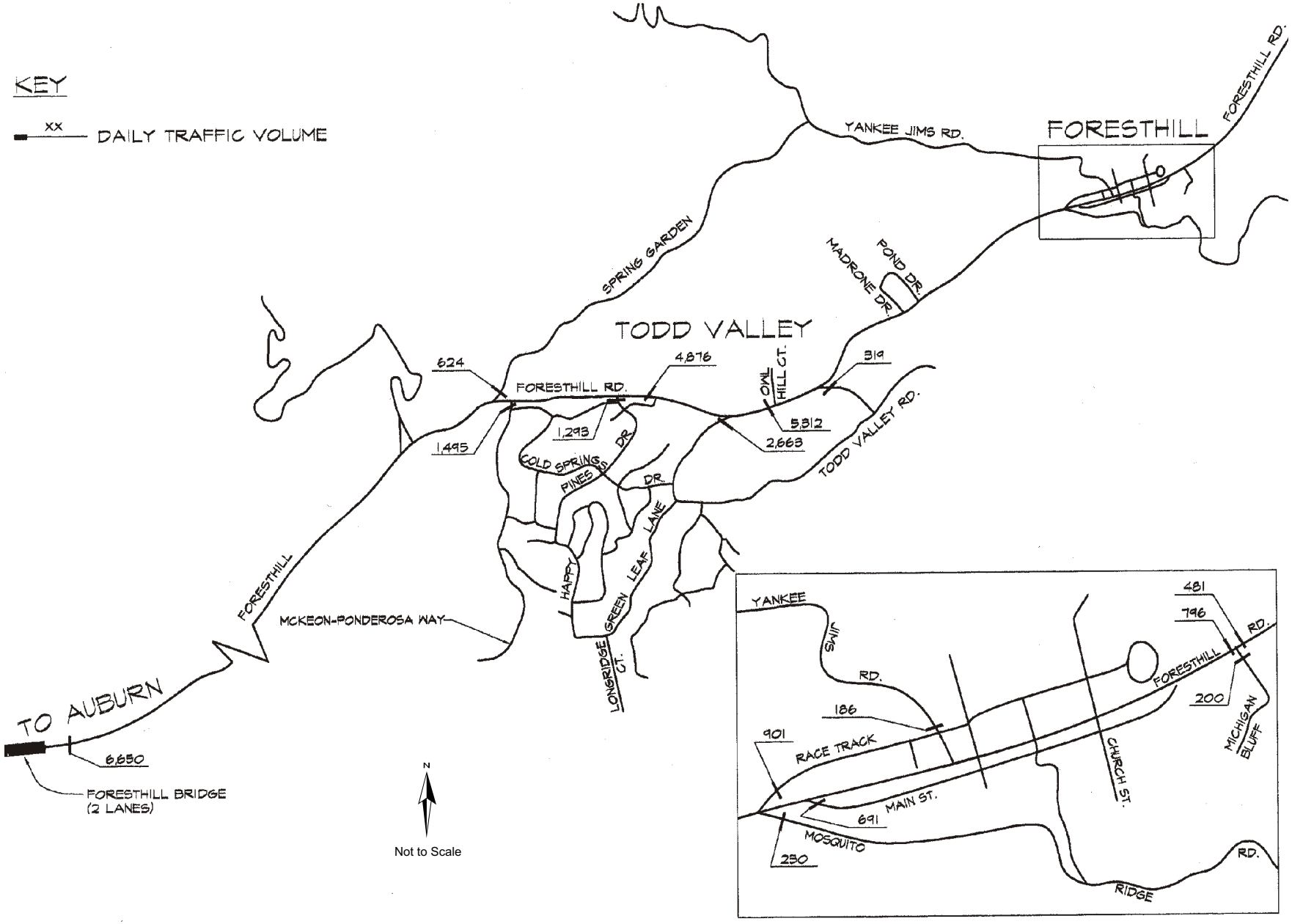
Source: Martin Rivett Olson Consulting Engineers, Quad Knopf, Inc.

Quad Knopf

Study Area

Figure 3.6-1

Job No.: 01576



Source: KD Anderson Transportation Engineers, Quad Knopf, Inc.

Quad Knopf

Existing Daily Traffic Volumes

Figure 3.6-2

Job No.: 01157

Level of Service	Description	Average Control Delay (Seconds/Vehicle)
F	Oversaturation. Forced or breakdown flow. Extensive queuing.	> 80.0

Note:[1]Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.

Table 3.6-5 summarizes the existing AM and PM peak-hour Levels of Service at each study intersection.

The four study intersections all operate at LOS "C" or better in the AM peak hour. The intersections of Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp and Auburn Ravine Road/I-80 Westbound Off-ramp both operate at LOS "B", while the intersection of Auburn Ravine Road/I-80 Eastbound Ramps operates at LOS "A." Auburn Ravine Road/Foresthill Road/Lincoln Way operates at LOS "C" in this time period.

In the PM peak hour, all four study intersections are at LOS "D" or better. The intersections of Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp and Auburn Ravine Road/I-80 Westbound Off-ramp operate at LOS "B." The intersection of Auburn Ravine Road/I-80 Eastbound Ramps operates at LOS "D" and Auburn Ravine Road/Foresthill Road/Lincoln Way operates at LOS "C."

Thus, according to the Level of Service standard being employed in this analysis, the four existing study intersections operate at acceptable Levels of Service in the both the AM and the PM peak hour. Figure 3.6-4 illustrates the peak hour traffic volumes at these intersections.

Table 3.6-5
Intersection Level of Service Summary[1] - Existing Conditions

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay [2]	LOS [3]	Delay	LOS
Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp	Signal	15.5	B	19.2	B
Auburn Ravine Road/I-80 Westbound Off-ramp	Signal	12.3	B	10.2	B
Auburn Ravine Road/I-80 Eastbound Ramps	Signal	7.1	A	36.6	D
Auburn Ravine Road/Foresthill Road/Lincoln Way	Signal	22.8	C	33.9	C

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] Average control delay (seconds per vehicle)
[3] Level of service

Freeway Analysis Methodology

The analysis of the impacts of the proposed Forest Ranch project on the Interstate 80 (I-80) freeway system had two primary components: a freeway mainline analysis and a freeway ramp junction analysis. The procedures employed for each of these analyses are summarized below.

Freeway Mainline. The freeway mainline analysis addressed the key segments of I-80 in the vicinity of the Auburn Ravine Road/Foresthill Road interchange.

Level of Service on freeways is defined in terms of density (in passenger cars per mile per lane), which is considered an accurate measure of the ability of vehicles to maneuver, given the proximity of other vehicles. These Level of Service definitions are shown in Table 3.6-6.

Table 3.6-6
Freeway Mainline – Level of Service Definitions[1]

Level of Service	Description	Maximum Density (Passenger Cars/Mile/Lane)
A	Free-flow operations, with individual users virtually unaffected by others in the traffic stream.	$\leq$ 11.0
B	Stable flow, with speeds generally at the free-flow level. The presence of others in the traffic stream is only slightly noticeable.	11.1 – 18.0
C	Stable flow with speeds at or near the free-flow level. Individuals become noticeably affected by interactions with others.	18.1 – 26.0
D	High-density but stable flow, with speeds beginning to decline slightly and freedom to maneuver more noticeable limited.	26.1 – 35.0
E	Operating conditions at or near capacity. Virtually no usable gaps exist in the traffic stream, significantly restricting maneuverability.	35.1 – 45.0
F	Represents forced or breakdown flow.	> 45.0

Note:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.

The results of the analysis of I-80 mainline operations in the AM and PM peak hours under existing conditions are summarized in Table 3.6-7. The I-80 freeway mainline operates at LOS "A" or "B" in both directions in the AM peak hour, both north and south of Auburn Ravine Road. In the PM peak hour, the analysis reveals LOS "B" on both study segments in both directions. Thus, the freeway mainline operates at acceptable Levels of Service under existing conditions.

Table 3.6-7
Freeway Mainline Level of Service Summary[1]
Existing Conditions

I-80 Segment	AM Peak Hour		PM Peak Hour	
	Eastbound	Westbound	Eastbound	Westbound

	Density[2]	LOS[3]	Density	LOS	Density	LOS	Density	LOS
North of Auburn Ravine Road	9.6	A	11.2	B	14.6	B	11.2	B
South of Auburn Ravine Road	9.0	A	13.0	B	16.1	B	12.3	B

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] In passenger cars per mile per lane
[3] Level of service

Freeway Ramp Junction. The analysis of freeway ramps addressed the on- and off-ramps at the I-80/Auburn Ravine Road/Foresthill Road interchange, as those would be most affected by implementation of the proposed project.

The ramp junction analysis consisted of an evaluation of the merge/diverge activity at the ramp-freeway junctions, based on existing and projected traffic volumes and a number of specific factors concerning the individual ramp facilities. Level of Service for ramp-freeway junction areas is generally defined in terms of the density of traffic in the "ramp influence area" (although LOS "F" is defined as occurring when demand exceeds the capacity of the upstream or downstream freeway section or the capacity of an off-ramp). For both on-ramps and off-ramps, the influence area includes only the two right-most lanes on the freeway mainline, as those lanes are most affected by the maneuvers associated with vehicles entering or exiting the freeway. Table 3.6-8 summarizes the criteria used to define ramp-freeway junction Levels of Service.

Table 3.6-8
Ramp Junction (Merge/Diverge) – Level of Service Definitions[1]

Level of Service	Maximum Density (Passenger Cars/Mile/Lane)
A	$\leq$ 10.0
B	10.1 – 20.0
C	20.1 – 28.0
D	28.1 – 35.0
E	> 35.0
F	Demand exceeds capacity.

Note:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.

Table 3.6-9 presents the results of the analysis of the freeway ramp junctions for existing conditions in the AM and PM peak hours. The technical calculation worksheets are presented in Appendix A of the Martin Rivett & Olson traffic study (Appendix I of this EIR).

The four on-and off-ramps at the I-80/Auburn Ravine Road/Foresthill Road interchange all operate at LOS "B" in the AM peak hour. In the PM peak hour, the I-80 Eastbound Off-ramp operates at LOS "C," while the other three ramps operate at LOS "B."

Table 3.6-9
Freeway Ramp Junction Level of Service Summary[1]
Existing Conditions

Freeway Ramp	AM Peak Hour		PM Peak Hour	
	Density [2]	LOS [3]	Density	LOS
I-80 Westbound On-ramp	16.6	B	15.5	B
I-80 Westbound Off-ramp	14.4	B	14.4	B
I-80 Eastbound On-ramp	12.4	B	17.5	B
I-80 Eastbound Off-ramp	11.8	B	20.6	C

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] In passenger cars per mile per lane
[3] Level of service

Transit Service

The Consolidated Transportation Service Agency (CTSA) provides public mass transportation service in Foresthill. CTSA runs one bus daily between Foresthill and Auburn. The bus has five scheduled stops within the community of Foresthill. The first pick up is at Forest House at 7:45 a.m. with the last pick up at the Todd Valley Mobile Home Park at 8:05 a.m. before the bus travels down the hill to Auburn. In Auburn, the bus drops off all patrons at the Elders Transfer station. In the afternoon, the bus reverses the route and leaves Auburn at 3:30 p.m. and travels back to Foresthill. The bus ride costs $2.50.

Bikeway/Pedestrian Facilities

Both the bikeway and pedestrian facilities within the Foresthill community are limited. Limited sidewalks exist in the downtown area and bicyclists are forced to share the roadways with motorist.

Airport Transportation

Foresthill is not served by a public/commercial airport. The closest airports to Foresthill are the Georgetown Airport and Auburn Municipal Airport.

Rail Service

Foresthill is not served by freight or passenger rail services.

Tourist Traffic

Foresthill Road is used for tourist travel between the Auburn area, the Tahoe National Forest and the Auburn State Recreation Area. Approximately 900,000 tourists visit the Foresthill area of the Tahoe National Forest annually (Rich Johnson, Tahoe National Forest, pers. comm., June 2002). Forest Service staff also indicated that the two main routes into the National Forest (i.e., Foresthill Road east of Foresthill and Mosquito Ridge Road) were utilized about equally, and while the summer tourist crowd is still larger than the winter tourist crowd, the number of patrons traveling during the winter is increasing rapidly. Based on information provided by Forest Service staff, and accounting for such factors as carpooling and weekend vs. weekday traffic, it is estimated that tourist traffic accounts for a total of 570± weekday trips on Foresthill Road between Auburn and Foresthill. In the future, tourist traffic to the Tahoe National Forest is assumed to double, which equates to a 3.5 percent annual growth rate over the next 20 years (this assumption is based on consultation with County staff and the professional judgment of the traffic consultants).

Accident Data

Placer County supplied accident data for three years. Specifically, the data that was available was for the most current period from 09-22-96 to 09-22-99. While additional data was available prior to these dates, accident data that is older than three years is typically not utilized. Table A (See Appendix J of this EIR) summarizes the available accident data and lists those locations where the majority of accidents occurred on each roadway.

As shown in Table A, the majority of accidents in the Foresthill area occurred on Foresthill Road. A total of 116 accidents were reported within this three-year period. Of these 116 accidents, 13 were in the vicinity of Driver's Flat Road, with that number dropping slightly at Upper Lake and North Fork Ponderosa Way (12) and at Todd Valley Road (11). Most occurred under dry roadway conditions (75) or while the drivers were unimpaired (84). A total of 52 accidents resulted in objects being hit. A total of 3 people were killed and a total of 102 people were injured.

A total of 5 accidents were reported on Todd Valley Road. The majority occurred at Green Leaf Lane and resulted in one person being killed and 5 people being injured. The roadway was dry (4) when most of the accidents occurred. A total of 4 drivers were impaired and 4 of the accidents resulted in objects being hit.

On Spring Garden Road and Yankee Jim's Road a total of 3 accidents were reported, while Michigan Bluff Road had one accident within this three year time period.

Future Circulation System

In addition to the existing roadway system, the draft Foresthill Community Plan Circulation Element includes several new roadways. These roadways include: 1) a new connection between

Yankee Jim's Road and the new high school site, 2) an upgrade and extension of Power Line Road between Spring Garden in the west to Foresthill Road in the east near the vicinity of the new high school, and 3) the extension of Patent Road from its current terminus just east of Todd Valley Road to Mosquito Ridge Road in the east in addition to upgrading the existing section of Patent Road east of Green Ridge Drive. All of these newly planned roadways were assumed to be included as part of the future circulation system.

Placer County General Plan Policies

Transportation and Circulation

3.A.1. The County shall plan, design, and regulate roadways in accordance with the functional classification system described in Part I of this Policy Document and reflected in the Circulation Plan Diagram.

3.A.2. Streets and roads shall be dedicated, widened, and constructed according to the roadway design and access standards generally defined in Section I of this Policy Document and, more specifically, in community plans and the County's Highway Deficiencies Report. Exceptions to these standards may be necessary but should be kept to a minimum and shall be permitted only upon determination by the Public Works Director that safe and adequate public access and circulation are preserved by such exceptions.

3.A.3. The County shall require that roadway rights-of-way be wide enough to accommodate the travel lanes needed to carry long-range forecasted traffic volumes (beyond 2010), as well as any planned bikeways and required drainage, utilities, landscaping, and suitable separations. Minimum right-of-way criteria for each class of roadway in the county are specified in Part I of this Policy Document.

3.A.4. On arterial roadways and thoroughfares, intersection spacing should be maximized. Driveway encroachments along collector and arterial roadways shall be minimized. Access control restrictions for each class of roadway in the county are specified in Part I of this Policy Document.

3.A.5. Through-traffic shall be accommodated in a manner that discourages the use of neighborhood roadways, particularly local streets. This through-traffic, including through truck traffic, shall be directed to appropriate routes in order to maintain public safety and local quality of life.

3.A.6. The County shall require all new development to provide off-street parking, either on-site or in consolidated lots or structures.

3.A.7. The County shall develop and manage its roadway system to maintain the following minimum levels of service (LOS).

a. LOS "C" on rural roadways, except within one-half mile of state highways where the standard shall be LOS "D".

b. LOS "C" on urban/suburban roadways except within one-half mile of state highways where the standard shall be LOS "D".

The County may allow exceptions to these level of service standards where it finds that the improvements or other measures required to achieve the LOS standards are unacceptable based on established criteria. In allowing any exception to the standards, the County shall consider the following factors:

- The number of hours per day that the intersection or roadway segment would operate at conditions worse than the standard.
- The ability of the required improvement to significantly reduce peak hour delay and improve traffic operations.
- The right-of-way needs and the physical impacts on surrounding properties.
- The visual aesthetics of the required improvement and its impact on community identity and character.
- Environmental impacts including air quality and noise impacts.
- Construction and right-of-way acquisition costs.
- The impacts on general safety.
- The impacts of the required construction phasing and traffic maintenance.
- The impacts on quality of life as perceived by residents.
- Consideration of other environmental, social, or economic factors on which the County may base findings to allow an exceedance of the standards.

Exceptions to the standards will only be allowed after all feasible measures and options are explored, including alternative forms of transportation.

3.A.10. The County shall strive to meet the level of service standards through a balanced transportation system that provides alternatives to the automobile.

3.A.11. The County shall plan and implement a complete road network to serve the needs of local traffic. This road network shall include roadways parallel to regional facilities so that the regional roadway system can function effectively and efficiently. Much of the is network will be funded and/or constructed by new development.

3.A.12. The County shall require an analysis of the effects of traffic from all land development projects. Each such project shall construct or fund improvements necessary to mitigate the effects of traffic from the project. Such improvements may include a fair share of improvements that provide benefits to others.

3.A.13. The County shall secure financing in a timely manner for all components of the transportation system to achieve and maintain adopted level of service standards.

3.A.14. The County shall assess fees on new development sufficient to cover the fair share portion of that development's impacts on the local and regional transportation system. Exceptions may be made when new development generates significant public benefits

(e.g., low income housing, needed health facilities) and when alternative sources of funding can be identified to offset foregone revenues.

3.B.3. The County shall consider the need for future transit right-of-way in reviewing and approving plans for development. Rights-of-way may either be exclusive or shared with other vehicles.

3.C.4. During the development review process, the County shall require that proposed projects meet adopted Trip Reduction Ordinance (TRO) requirements.

3.D.5. The County shall continue to require developers to finance and install pedestrian walkways, equestrian trails, and multi-purpose paths in new development, as appropriate.

3.D.7. The County shall, where appropriate, require new development to provide sheltered public transit stops, with turnouts.

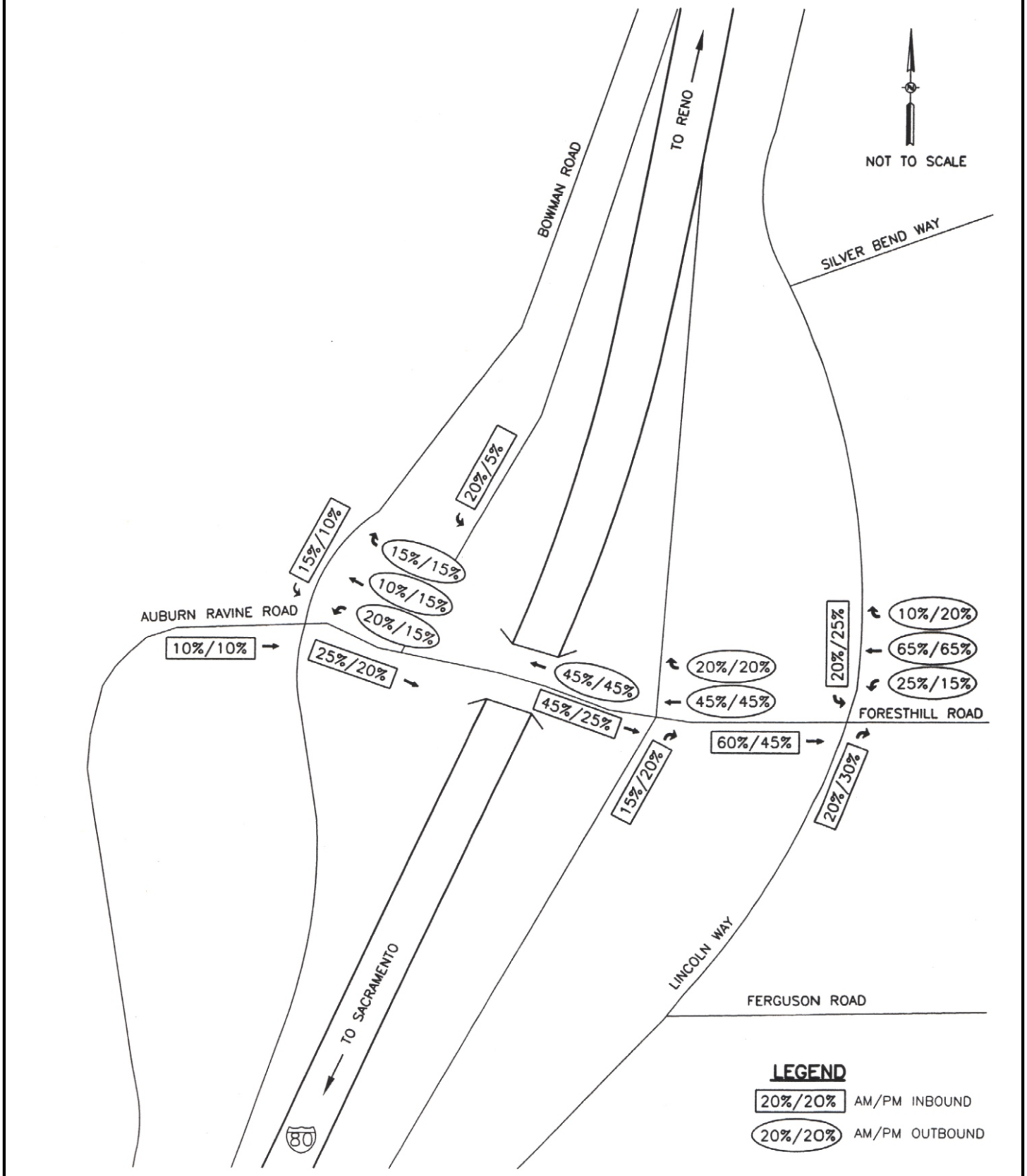
Foresthill General Plan Goals and Policies

Transportation/Circulation Element

Goal: To provide for a transportation system that supports the social, economic and environmental well being of the people in the General Plan area.

a. Alternate transportation forms should serve diverse agricultural, commercial, industrial and residential needs and areas.

b. The present road network should be maintained at a level which ensures that it is safe, economical and efficient.



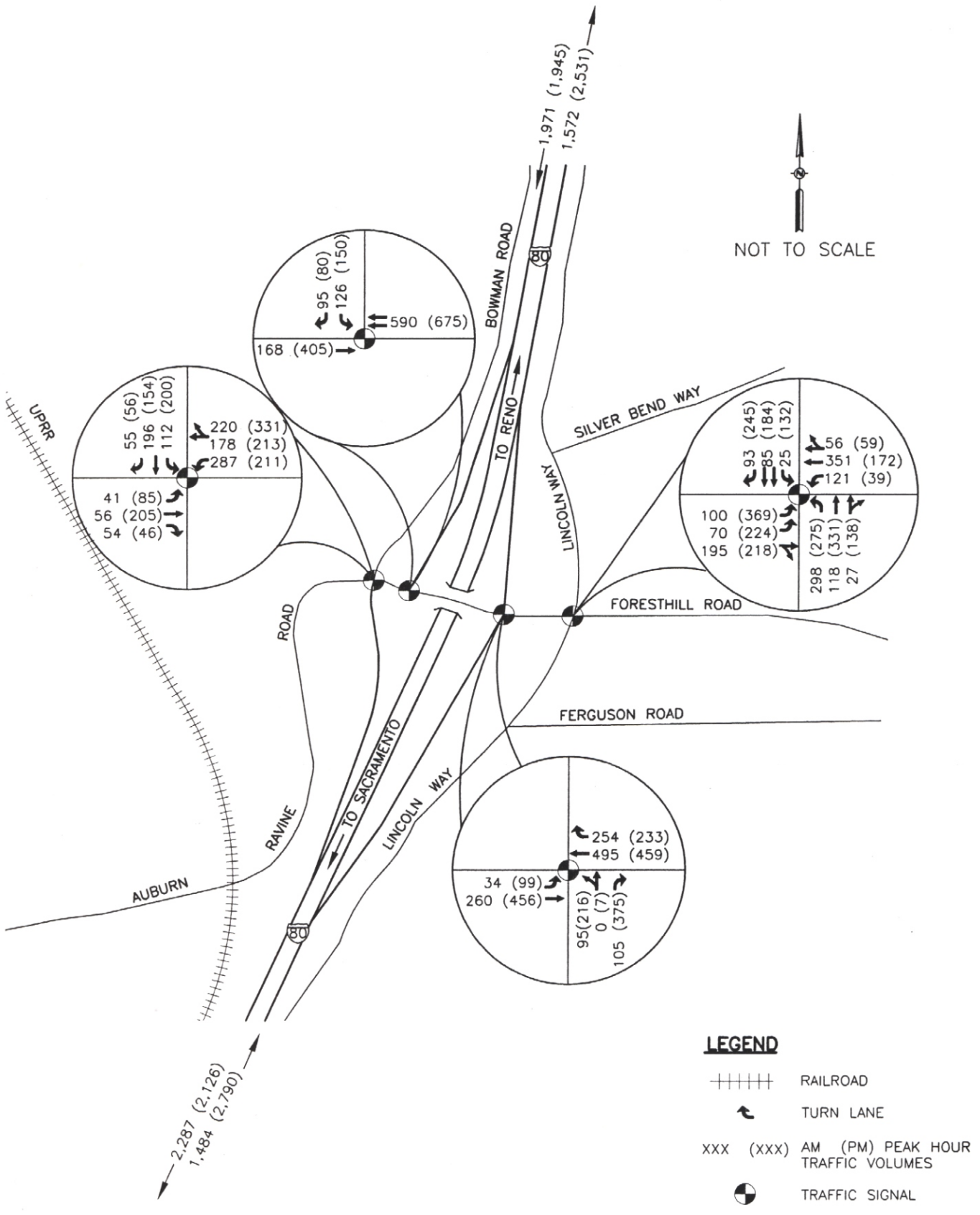
Source: Martin Rivett Olson Consulting Engineers, Quad Knopf, Inc.

Quad Knopf

Project Trip Distribution
Existing Conditions

Figure 3.6-3

Job No.: 01576



Source: Martin Rivett Olson Consulting Engineers, Quad Knopf, Inc.

Quad Knopf

Peak Hour Traffic Volumes
Existing Conditions

Figure 3.6-4

Job No.: 01576

Foresthill Divide Community Plan Policies

Transportation and Circulation Element

5.1-1 Establish and maintain a Level of Service (LOS) of "C" or better on Foresthill Road between Auburn and the Idle Wheels Mobile Home Park and "D" or better between the Idle Wheels Mobile Home Park and east of the Foresthill Elementary School.

5.1-2 The recent improvements to Foresthill Road should be extended to Mosquito Ridge Road. Placer County should continue to pursue all appropriate sources of funding for these improvements. An interim plan for improving Foresthill Road with County resources focusing on the most dangerous sections should be developed.

5.1-3 As roadway improvements are made, seek to reduce the number of access points in developed areas on Foresthill Road and provide left-turn lanes for frequently used access points, or a two-way left turn lane for dense-access areas.

5.1-4 Proponents of new development projects should analyze the project's contribution to increased traffic on Foresthill Road and implement improvements necessary to address the increase. Mitigation of significant project-related impacts may require improvements beyond those addressed by the Placer County traffic impact mitigation fee program.

5.1-5 Road improvements along Foresthill Road should include a Class I bikeway (off-street bike trail or path which is physically separated from the roadway) between major residential areas and downtown Foresthill, i.e., currently between the Spring Garden Road and Black Hawk Road. As new residential neighborhoods are developed, the Class I bikeway should be extended to reach them. New development projects that border Foresthill Road should include the bikeway as part of their development plans. The bikeway may utilize existing road, water, power line or fire access easements where appropriate. The bikeway may be developed along the edge of the proposed improved Foresthill roadway in advance of or in conjunction with Federal, State and/or County-funded improvements.

5.3-1 New development projects should incorporate collector or arterial road segments that connect to and take advantage of existing access to existing neighborhoods, if possible, and minimize the impact of egress and congestion on Foresthill Road.

5.3-2 Arterial and collector roads shall be protected from unrestricted driveway access in order to enhance secondary circulation. Possible candidates include Spring Garden Road, Happy Pines Drive, Cold Springs Road, Red Rock Drive, McKeon-Ponderosa Way, Todd Valley Road, Thomas Street, Powerline Road, Yankee Jim's Road and Michigan Bluff Road. These roads should have bike lanes or adjacent trails and safe bus stops that do not impede traffic.

5.3-3 Road easements in new developments shall include space for a five-foot multi-purpose roadside trail, or equivalent off-road trail network to enable children, equestrians, bicyclists, and pedestrians to safely circulate throughout the neighborhood.

5.5-2 New residential developments shall provide designated sites that can be used for transit stops, carpool lots and other centralized facilities.

5.5-3 New developments of 100 residential units or more shall provide public carpool parking facilities. These facilities should also be utilized for overflow parking and staging areas for community events.

5.5-4 Require developments of 100 residential units or more to provide sheltered public transit stops, with turnouts where appropriate. Consider development of turnouts in existing developed areas where roadway improvements are made or as deemed necessary for traffic flow and public safety.

5.5-5 Require that land use patterns and transportation systems in new growth areas be designed to provide residents and employees with the opportunity to accomplish many of their trips by walking, bicycling and using public transit.

5.7-1 New development projects which border public land shall provide emergency or public access to that public land utilizing existing roads or trails if possible. Access may be located along property lines. At least one access point shall be provided for each 5,000 feet of shared borders between private and public lands.

5.8-1 New development shall be evaluated as to its impact on the [Foresthill Road/Lincoln Way/I-80 overcrossing] intersection.

3.6.2 IMPACTS AND MITIGATION MEASURES

Impact Evaluation Criteria

Roadway/Intersection Operations – Existing + Project

Appendix G of the *Guidelines for the Implementation of the California Environmental Quality Act* (CEQA Guidelines) provides that a project will normally have a significant effect on the environment if it will cause a substantial increase in traffic in relation to the existing traffic load and capacity of the street system. For this analysis, Levels of Service will be used as the basis for determining significant impacts. Potential significant impacts associated with traffic have been evaluated using the following specific criteria:

- LOS "C" on rural roadways, except within one-half mile of state highways where the standard shall be LOS "D."

- LOS "C" on urban/suburban roadways except within one-half mile of state highways where the standard shall be LOS "D."

- Establish and maintain a Level of Service (LOS) of "C" or better on Foresthill Road between Auburn and the Idle Wheels Mobile Home Park and "D" or better between the Idle Wheels Mobile Home Park and east of the Foresthill Elementary School.

- Change the intersection Level of Service from acceptable levels (LOS "A", "B", "C", or "D") to unacceptable levels (LOS "E" or "F").

- Change the I-80 freeway mainline level of service from acceptable levels (LOS "A", "B", "C", "D", or "E") to an unacceptable level (LOS "F").

- Cause any ramp junction (merge/diverge) Level of Service to be worse than the I-80 freeway mainline Level of Service.

- Exacerbate intersection operations through an increase in the delay value at an intersection that already operates at LOS "E" or "F" under "no project" conditions.

- Exacerbate freeway mainline conditions through an increase in the density value on a freeway section that already operates at LOS F under "no project" conditions.

With development of the Forest Ranch project, the proportion of senior housing within the Foresthill community will increase. The increase in senior residents will in turn decrease the percentage of trips occurring during the peak hours as seniors tend to avoid traveling during peak commute hours. Change in the proportion of daily trips occurring during the peak hour directly affects the daily roadway thresholds as these thresholds were originally derived using a "standard" peak hour trip percentage. The identified thresholds reflect information contained in the Placer County General Plan, as well as new information that reflects the character of Foresthill Road. Specifically, the effects of climbing lanes on average travel speed and resulting Levels of Service have been incorporated into these thresholds. Climbing lanes have the effect of raising Level of Service thresholds, although the overall capacity of the road remains constrained by the two lane sections.

Table 3.6-10
Evaluation Criteria for Level of Service
Accounting for Age Restricted Housing in Forest Ranch

	Maximum Daily Traffic Volume Level of Service				
Roadway Capacity Class	A	B	C	D	E
1. Rural 2-lane-Rolling w/o Passing Lane	1,130	3,600	6,820	10,420	19,750
2. Rural 2-lane-Rolling w/39% Climbing Lanes	1,130	4,810	11,400	15,110	19,750
3. Rural 2-lane-Rolling w/40% Climbing Lanes	1,130	4,900	11,590	15,370	19,750
4. Rural 2-lane Rolling w/43% Climbing Lanes	1,130	5,180	12,190	16,160	19,750
5. Rural 2-lane Rolling w/71% Climbing Lanes	1,130	10,590	19,750	19,750	19,750
6. Rural 2-lane-Rolling (PCGP)	1,700	4,470	7,670	12,140	22,370

Roadway Capacity Class	Maximum Daily Traffic Volume Level of Service				
	A	B	C	D	E
7. Rural 2-lane-Mountainous (PCGP)	850	2,560	4,470	7,200	14,910
8. Arterial - Low Access Control (PCGP)	7,460	11,190	12,780	14,630	15,980

Source: Placer County GP, Placer County staff, kdAnderson Transportation Engineers, based upon Highway Capacity Manual, Transportation Research Board, 1985.

Development which is inconsistent with relevant Placer County General Plan and Foresthill General Plan policies should be considered potentially significant. Because the Foresthill Divide Community Plan is not yet adopted, but has been developed by the Foresthill Community Plan Team and is currently under review for possible adoption, development which is inconsistent with relevant proposed policies may be considered potentially significant, although it is recognized that policies may not be adopted in their current form.

Trip Generation

The number of automobile trips which will be generated by development of the Forest Ranch project has been estimated through application of published trip generation rates. These trip rates are presented in the Institute of Transportation Engineers' (ITE) Trip Generation, (Sixth Edition), the draft Foresthill Divide Community Plan, other studies with similar land uses, and discussions with Placer County staff. The low-density townhomes are expected to function more like single family residences so the single-family trip generation rates were utilized for the townhomes as directed by Placer County staff and as recommended by the traffic consultant. A detailed description of each of these trip generation rates is presented in Table B, Appendix H of this EIR.

Table 3.6-11 presents the daily trip generation rates employed for this analysis. Table 3.6-12 presents the number of trips anticipated to be generated with development of the project.

Table 3.6-11
Trip Generation Rates

Land Use	Units	Quantity	Daily Rate
Single Family	dus	297 dus	5.54 trips/du
Townhomes	dus	216 dus	5.54 trips/du
Retirement Community	dus	1,700 dus	2.94 trips/du
Golf course	hole	18 holes	28.60 trips/hole
Office / professional	ksf	5.0 ksf	26.6 trips/ksf
Medical/Dental	ksf	14.0 ksf	25.5 trips/ksf
Equestrian Center	horse	50 horses	0.699 trips/horse
Recreation Vehicle Park	Occupied space	100 spaces	3.33 trips/space
dus= dwelling units ksf = 1,000 square feet			

Source: kdANDERSON Transportation Engineers

Table 3.6-12
Trip Generation

Land Use	Quantity	Daily Trips
Proposed Project		
	Residential	
Single Family/Townhomes (golf course match) (office match) (medical match) (equestrian match) net external	513 dus	2,842 (80) (21) (55) (5) 2,681
Retirement Community	1,700 dus	4,998
Total Gross Residential Total Net External (Residential)		7,840 7,679
	Non-Residential	
Golf course (2/3 internal match) net external	18 holes	515 (343) 172
Office / professional (2/3 internal match) net external	5.0 ksf	133 (89) 44
Medical/Dental (2/3 internal match) net external	14.0 ksf	358 (239) 119
Equestrian Center (2/3 internal match) net external	50 horses	35 (23) 12
Recreation Vehicle Park	100 spaces	333
Total Gross-Non Residential Total Net External-Non-Residential		1,374 680
Gross Total Project Trips Net External Site Project Trips		9,214 8,359
dus = dwelling units ksf = 1,000 square feet		

Source: kdANDERSON Transportation Engineers

Some of the trips generated by the project will remain on site as residential and non-residential trips will match. This on-site matching effectively reduces the number of trips that will be external to the site. An internal trip generation reduction, proportional to the percentage of single-family and townhome residences, was taken for internal matching of the non-residential portion of the site. However, no reduction in the number of trips generated by the retirement community housing was taken for internal matching, as the trip generation rates for retirement communities already account for internal matching to such uses as golfing, recreation centers, and small amounts of office and retail uses.

As shown in Table 3.6-12, the proposed project is anticipated to generate a total of 9,214 "gross" daily trips. Of these daily trips, a total of 8,359 daily trips are anticipated to be external to the project site and access the adjacent street system.

Trip Distribution

Having determined the number of trips anticipated to be generated by the proposed project, it is necessary to identify the directional distribution of project traffic. Table 3.6-13 presents the directional distribution of project trips. The directional distribution was based on the location of complementary land uses and information presented in the draft Foresthill Divide Community Plan.

Some of the project trips will remain internal to the site, others were assumed to match within the Foresthill Divide and others were assumed to be external to the community. Those that match internally within the site add traffic to the internal roadway system for the project, but do not affect roadway traffic volumes that are external to the project site.

Under short-term conditions, it was also assumed that the existing retail and office uses in the Foresthill community would generate 25% more daily trips due to the increase in area patrons. This increase in existing patronage resulted in more of the external residential trips from the project site matching existing uses in the Foresthill community. However, even with this assumed increase in patronage, the existing Foresthill community does not have sufficient non-residential development to serve an additional 2,213 residences, and only about 15% of the external residential project trips match within the Foresthill community.

The remainder of the residential trips generated by the project were assumed to be out of the community. The residential trips that are projected to leave the community are anticipated to be primarily oriented to the west toward Auburn (95%), with the remaining trips heading eastward into the National Forest (5%).

Patrons of the RV park were assumed to live out of the area. For the external non-residential uses, 90% were assumed to match within the Foresthill community, while the remaining 10% were assumed to be external. All of the external office/professional and medical/dental trips were also assumed to draw patrons from within the Foresthill community. Table 3.6-13 presents the matching that is anticipated to occur within the Foresthill Divide from project trips that are external to the site.

Table 3.6-13
Matching Within the Foresthill Community Divide for Daily Trips External to Project Site

		Non-Residential		
Destination	Residential	RV Park	Golf	Office/Professional Medical/Dental
Internal to Foresthill Community	15%	-	90%	100%
External to Foresthill Community	85%	100%	10%	-
Total	**100%**	**100%**	**100%**	**100%**

Source: kdANDERSON Transportation Engineers

Roadway/Intersection Operations – Future + Project

When the Forest Ranch project develops, the County envisions additional non-residential development will occur in the downtown core area in addition to those non-residential uses assumed in the draft Foresthill Divide Community Plan. It was assumed that an additional 70,262 square feet of retail uses and 60,184 square feet of office/professional uses will develop under the "Plus Project" scenario in response to the increase in residences in the Forest Ranch project beyond what is assumed in the draft Community Plan.

Under the "Plus Project" condition, the Forest Ranch project proposes limited office/professional uses. The amount of "additional" non-residential uses that were assumed under the "Future Plus Project" conditions were based on the ratio of residents in the Foresthill Divide Community Plan to the number of additional residents proposed to reside in the Forest Ranch project site under the proposed project. Therefore, the office uses proposed in the Forest Ranch project were deducted from the estimated future non-residential uses. It is therefore assumed that a total of 41,184 square feet of additional office uses will develop in the future on the Foresthill Divide.

Trip Generation

Site Development Under the Draft Foresthill Divide Community Plan. Overall, development of the draft Foresthill Divide Community Plan was anticipated to result in a total of 12,918 trips from the residential uses and a total of 8,444 new daily trips from the non-residential uses. Accounting for the match within the Community Plan area, a total of 4,474 trips are external to the Plan area.

At buildout of the Community Plan, a total of 4,333 dwelling units are anticipated to exist within the Foresthill Divide. This total dwelling unit count within the Foresthill Community includes a 20% overall reduction in "build out" of residential housing based on anticipated actual development levels. On the project site itself, a total of only 366 single-family dwelling units were assumed to develop under the Foresthill Divide Community Plan due to the 20% reduction. The project was anticipated to generate a total of 2,027 daily trips. As these 2,027 daily trips were already accounted for in the daily traffic projections in the Foresthill Divide Community Plan traffic analysis, the daily traffic generated by the project was reduced accordingly to account for this development already assumed on the project site.

Under the "Plus Project" condition, trip generation was calculated for the additional "net" non-residential uses that the County envisioned. Based on discussion with County staff, the parcels where the additional retail could develop are small and isolated.

As no "specific" uses were identified for the office/professional portion of this future development, it was assumed that half of the 41,184 square feet would develop as general office uses while the other half would develop as medical/dental uses. A total of 3,476 new non-residential trips were anticipated in the downtown area under the "Plus Project" scenario.

Trip Distribution and Assignment

The net difference in residential project trips and future "new" non-residential trips was assigned onto the adjacent street system. As for the Foresthill Divide Community Plan traffic study, trip distribution was based on existing travel patterns and the distribution of the existing and future development in the area. As part of the distribution and assignment process of the project generated traffic, the traffic generated by other development within the Community Plan area was also redistributed to account for the additional area interaction that would occur with development of the project. In other words, project trips were assumed to match uses within both the new non-residential development and the Community Plan area. Figure 3.6-5 displays the resulting daily traffic volumes on the study area roadways. Figure 3.6-6 displays the "Future Plus Project" projections.

Transit Service

When the draft Foresthill Divide Community Plan fully develops, the need for an additional bus or a change in bus routes may exist. A short and/or long-range transit study should be conducted to determine future needs.

This need for future transit services will be further exacerbated with development of the project and the additional retail and office development that was assumed to occur under the "Plus Project" scenario. The demand for transit services should be monitored via the transit study and when the need arises, an additional bus should be added to serve the Foresthill Divide Community Plan area. Additional stops near the major traffic generators may also be needed within the Foresthill community. Implementation of the draft Community Plan Policy 5.5-4 relating to transit should also occur. This policy requires developments of 100 or more residential units to provide sheltered public transit stops, with turnouts where appropriate. Therefore, a shelter will also be required within the project site itself.

Park and Ride Lot

Currently, Foresthill has one designated park and ride lot. Installation of additional park and ride lots would provide motorists wishing to ride share and/or ride transit a central place to meet and leave their vehicles.

Development of the project site would potentially result in the need for additional park and ride spaces. Policy 5.5-3 states that new developments of 100 residential units or more shall provide public carpool parking facilities. Therefore, the project would be responsible for providing a public carpool parking facility. Installation of such lots should be centrally located to be serviced by transit. These facilities should also be utilized for overflow parking and staging areas for community events.

Bikeway/Pedestrians

With development of the Community Plan area, the need for both bikeway and pedestrian facilities will increase that will be further exacerbated with project development. A bikeway master plan should be developed which includes the project site. In addition, a trail master plan could also be developed. Under the base condition, the Foresthill Divide Community Plan policies relating to bicycle and pedestrian facilities should be implemented. In addition, the draft Foresthill Divide Community Plan called for implementation of a number of policies to which the project should contribute its fair share.

Impact 3.6.1 Development of the proposed project is anticipated to result in substantial increases in traffic volumes and deterioration in Level of Service on study area roadways under Existing Plus Project conditions.

Using the directional distribution presented in Table 3.6-13, daily traffic generated by development of Forest Ranch was assigned to the adjacent street system. The assignment of project-generated trips was conducted considering proposed access locations and the quickest path available to the adjacent street system. Table 3.6-14 displays the resulting "Existing Plus Project" daily traffic volumes and the corresponding Levels of Service for the study area roadways. Where new daily counts were not available, older counts have been utilized as a basis for comparison. Figure 3.6-7 displays the resulting “Existing Plus Project” daily traffic volumes. Reduction of the overall amount of development within the Plan area would be one mechanism to address this impact unless the County is willing to accept LOS “D” on Foresthill Road from Auburn to the Idle Wheels Mobile Home Park. While it is a County decision to establish LOS policy, the community has expressed a desire to maintain LOS “C” on these roadways.. A reduction in the number of new housing units would reduce the amount of external traffic leaving the area on Foresthill Road, which in turn would reduce future daily traffic projections on this roadway. Alternatively, more non-residential uses could be constructed within the community in order to decrease the amount of daily traffic that is traveling on Foresthill Road between Auburn and the Foresthill community.

Based on daily roadway capacity thresholds, reduction of about 800 daily trips on Foresthill Road is needed in order to meet the County’s existing LOS “C” policy with the development anticipated under the draft Foresthill Divide Community Plan. As a general note, each single family home is projected to generate 5.54 daily trips (non-age restricted), of which about 95% of those trips that do not match within the Foresthill community are anticipated to be traveling between Auburn and Foresthill. Therefore, if about 160 fewer homes were to develop, a total of about 850 fewer daily trips would result on Foresthill Road between Auburn and Foresthill. This reduction in residential development would yield LOS “C” operations on the two impacted sections of Foresthill Road under the current draft Foresthill Divide Community Plan development proposal.

Table 3.6-14
Daily Roadway Traffic Volumes and Levels of Service
Existing and Existing Plus Project Conditions

			Existing			Existing Plus Project		
Roadway	Location	Criteria	LOS C Threshold	Daily Traffic	LOS	LOS C Threshold	Daily Traffic	LOS
Foresthill Road	Foresthill Bridge to Drivers Flat Rd	Rural w/39% climbing	10,710	6,650	C	11,400	13,200	D
Foresthill Road	Drivers Flat Rd to Spring Garden Rd	Rural w/40% climbing	10,880	6,800	C	11,590	13,500	D
Foresthill Road	Spring Garden Rd to Todd Valley Rd (W)	Rural w/71% climbing	18,540	4,876	B	19,750	11,700	C
Foresthill Road	Todd Valley (W) to Idle Wheels Mobile Home Park	Rural w/43% climbing	11,450	5,312	C	12,190	12,100	C
Foresthill Road	Idle Wheels Mobile Home Park to Mosquito Ridge	Arterial	12,000	4,800	A	12,780	11,500	C
Foresthill Road	Mosquito Ridge Rd to Yankee Jim's Rd	Arterial	12,000	3,950	A	12,780	10,800	B
Foresthill Road	Yankee Jim's Rd to Blackhawk Ln	Arterial	12,000	2,000	A	12,780	6,200	A
Foresthill Road	Blackhawk Ln to Ebberts Ranch Rd	Arterial	12,000	1,300	A	12,780	1,550	A
Foresthill Road	Ebberts Ranch Rd to Michigan Bluff Rd	Arterial	12,000	796	A	12,780	1,150	A
Foresthill Road	E. of Michigan Bluff Rd	Arterial	12,000	481	A	12,780	850	A
McKeon-Ponderosa	S of Foresthill Rd	Rural w/out passing	6,400	1,495	B	6,820	1,500	B
Spring Garden Rd	N of Foresthill Rd	Rural-Mountainous	4,200	624	A	4,470	625	A
Happy Pines Dr	S of Foresthill Rd	Rural w/out passing	6,400	1,293	B	6,820	1,300	B
Todd Valley Rd (W)	S of Foresthill Rd	Rural w/out passing	6,400	2,663	B	6,820	2,650	B
Todd Valley Rd (E)	S of Foresthill Rd	Rural w/out passing	6,400	319	A	6,820	300	A
Mosquito Ridge Rd	S of Foresthill Rd	Rural-Mountainous	4,200	230	A	4,470	250	A
Yankee Jim's Rd	N of Race Track St	Rural-Mountainous	4,200	186	A	4,470	3,800	C
Main Street	S of Foresthill Rd	Arterial	12,000	691	A	12,780	600	A
Michigan Bluff Rd	S of Foresthill Rd	Rural w/out passing	6,400	200	A	6,820	200	A
Race Track St	N of Foresthill Rd	Arterial	12,000	901	A	12,780	1,900	A

Under the "Existing Plus Project" condition, daily roadway projections on Foresthill Road exceed the Level of Service "C" threshold, resulting in Level of Service "D" conditions on the two sections of Foresthill Road between the Foresthill Bridge and Spring Garden Road. In order to maintain LOS "C" on these two impacted sections of Foresthill Road, the daily traffic volume on Foresthill Road would need to be reduced by about 1,900 daily trips. This ADT reduction equates to development of about 365 fewer single family/townhouses or about 685 fewer age restricted homes being able to develop on the divide.

The County has also considered the feasibility of adding additional passing lanes on Foresthill Road in order to increase the capacity and provide LOS "C" operations. Increasing the passing lane percentage from 39% to 43% would eliminate the roadway LOS "D" operations on the 5.6 mile Foresthill Road between the Foresthill Bridge and Drivers Flat Road under the "Future" base and "Future Plus Project" conditions. In order to achieve 43% passing lanes in this uphill section of Foresthill Road, an additional 0.22 miles of passing lanes (or a 4% increase) would be required. On the section of Foresthill Road between Drivers Flat Road and Spring Garden Road, a total of 45% passing lanes would be needed on this uphill section in order to achieve LOS "C" operations under the future condition. This 5% increase in passing lanes would equate to the need for an additional 0.24 miles of passing lane on this 4.84-mile segment.

Based on field observations, the County has concluded that adding another 4 to 5 percent passing lanes on Foresthill Road between the Foresthill Bridge and Drivers Flat Road, and between Drivers Flat Road and Spring Garden Road would be economically feasible with reasonable traffic impact mitigation fees.

As shown, development of the project is anticipated to result in substantial increases in traffic volumes on study area roadways. Foresthill Road between the Foresthill Bridge and Spring Garden Road is projected to deteriorate to LOS "D" operations with development of the project. The County's current policy requires LOS "C" operations be maintained on Foresthill Road between Auburn and the Idle Wheels Mobile Home Park. Therefore, this would be considered a ***significant impact.***

Mitigation Measure

Implementation of the following mitigation measure will reduce impacts to a *less than significant level:*

3.6.1a. *"Fair Share" traffic mitigation fees shall be paid in order to provide sufficient funding for roadway improvements necessary to maintain the Level of Service "C" on Foresthill roadways.*

The following additional measure will improve traffic flow on Foresthill Road. It will not result in enough improvement to change the Level of Service grade; however, it is needed due to traffic volumes.

3.6.1b. *A center two-way left turn on Foresthill Road from the Todd's Valley area through the downtown area is recommended as it will improve traffic flow during peak periods. This center two way left turn will improve safety by providing left turning motorists a refuge area to wait for the next available gap out of the through traffic flow on Foresthill Road, thus allowing through traffic to continue its progression. Installation of this improvement may also result in less rear end accidents that could be avoided by providing left turning motorists a refuge area out of the thru travel lane.*

Impact 3.6.2 Need for new traffic signals in the Foresthill community as a result of the proposed project under Existing Plus Project conditions.

Projected daily roadway volumes were also compared to the daily traffic warrants contained in the *Traffic Manual* to determine if traffic signals would be needed at any of the intersections within the study area. Based on these daily volumes, five (5) intersections are projected to meet warrants for signalization with development of the project. These five (5) intersections include:

- Foresthill Road/McKeon-Ponderosa Road
- Foresthill Road/Happy Pines Drive
- Foresthill Road/Todd Valley Road (West)
- Foresthill Road/Yankee Jim's Road
- Foresthill Road/Race Track Street

This is considered a ***significant impact.***

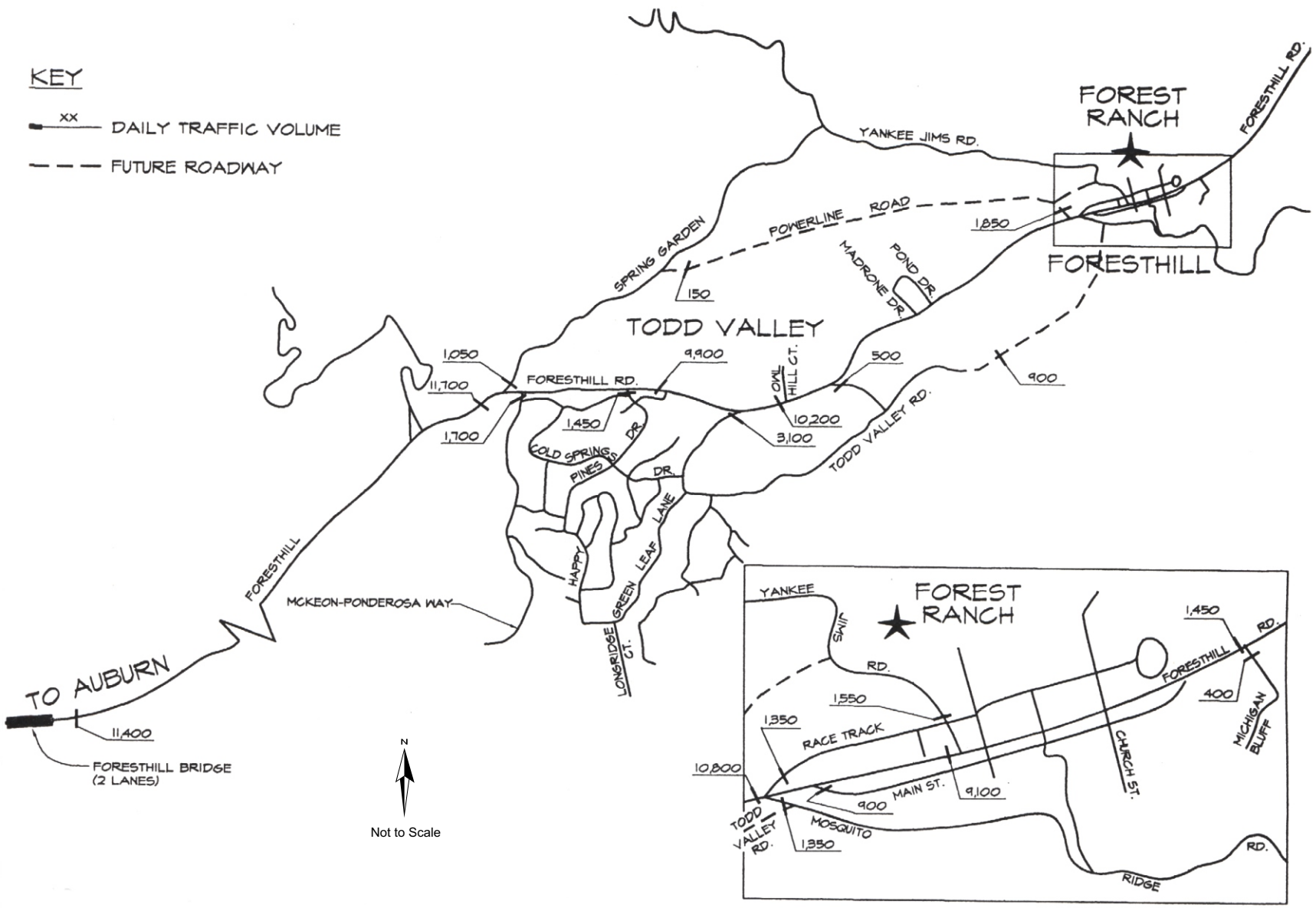
Mitigation Measure

Implementation of the following measure will reduce impacts on the five intersections to a *less than significant level:*

3.6.2. *Fair share payments shall be made toward the installation of traffic signals or other improvements when signal warrants are met. If traffic signals become necessary on Foresthill Road, utilize control mechanisms that minimize the delay of through traffic, especially during non-commute hours.*

Impact 3.6.3 Development of the proposed project is anticipated to result in substantial increases in traffic volumes and deterioration in Level of Service on study area roadways under Future Plus Project conditions.

The net difference in project trips was distributed onto the adjacent street system. Trip distribution was based on existing travel patterns and the distribution of the existing and future development in the Plan area. As part of the distribution and assignment process of the project-generated traffic, the traffic generated by other development within the study area was also redistributed to account for the additional area development that would occur with the project site. Figure 3.6-5 displays the resulting daily traffic volumes on the study area roadways, and Figure 3.6-6 displays Future Plus Project daily traffic projections.



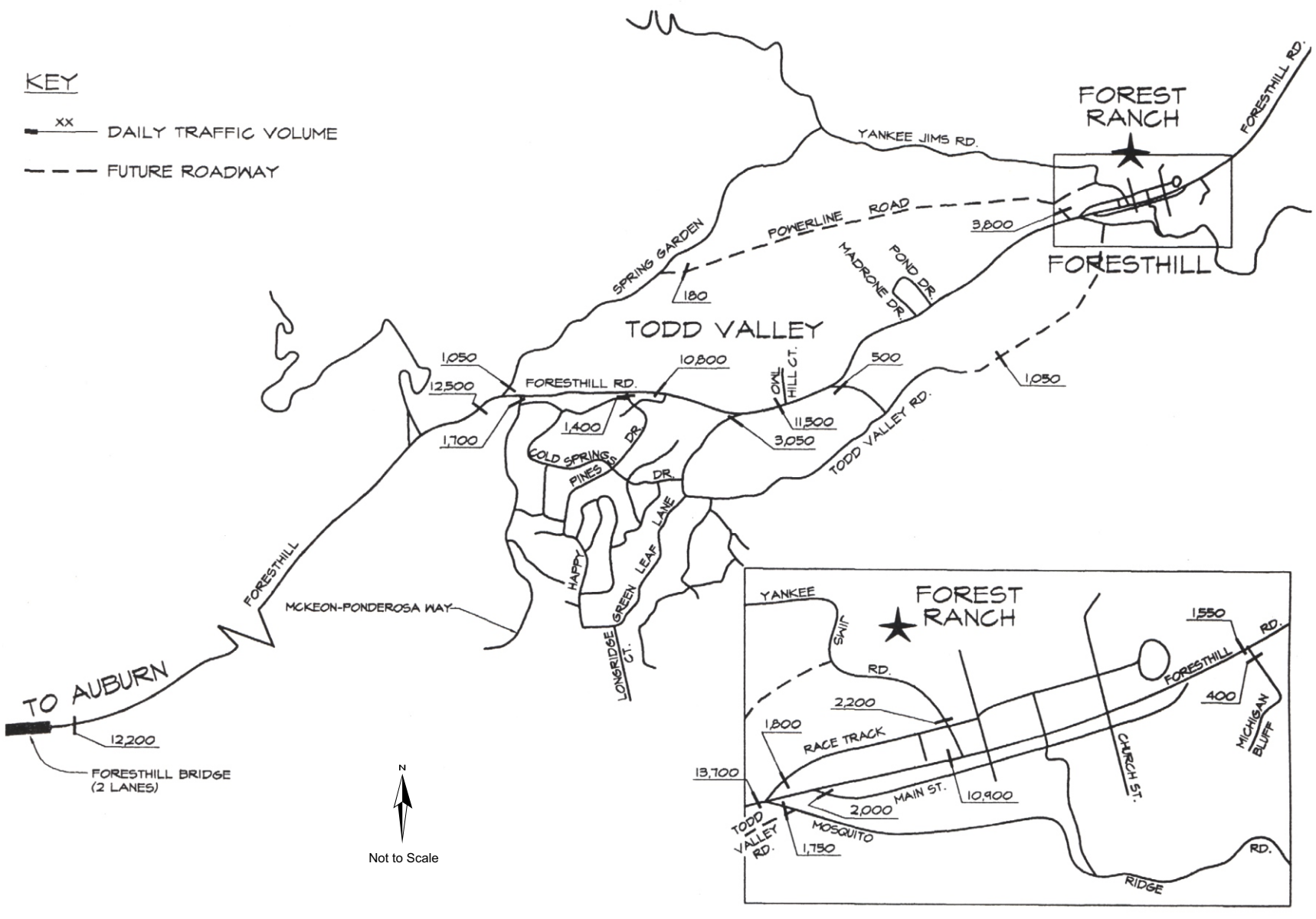
Source: KD Anderson Transportation Engineers, Quad Knopf, Inc.

Quad Knopf

Future Daily Traffic Projections

Figure 3.6-5

Job No.: 01157



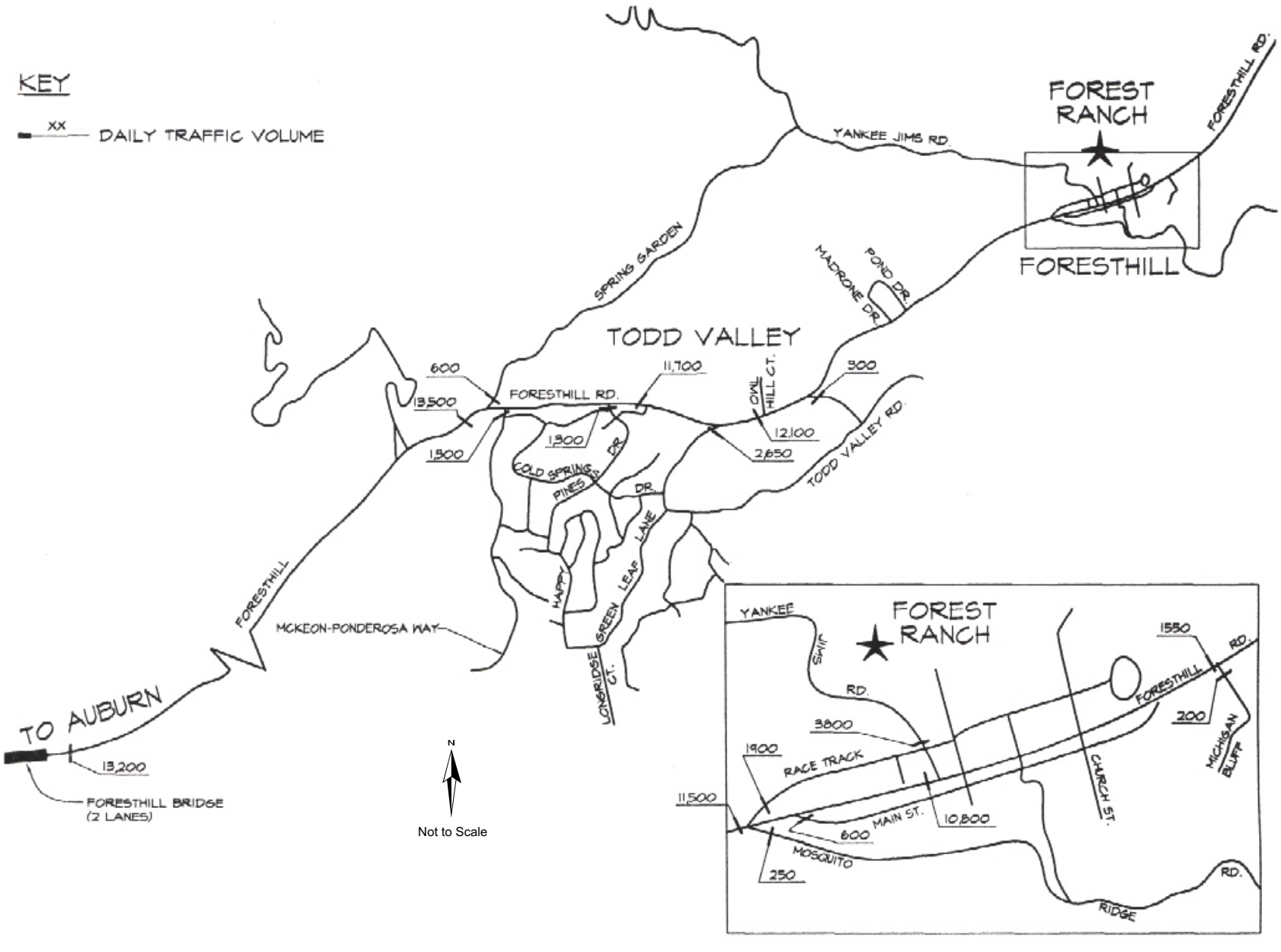
Source: KD Anderson Transportation Engineers, Quad Knopf, Inc.

Quad Knopf

Future Plus Project Plus Additional Non-Residential Development Daily Traffic Projections

Figure 3.6-6

Job No.: 01157



Source: KD Anderson Transportation Engineers, Quad Knopf, Inc.

Quad Knopf

Existing Plus Project Daily Traffic Volumes

Figure 3.6-7

Job No.: Xxxxx

The resulting future daily traffic projections on the study roadways are presented in Table 3.6-14. The future base daily traffic projections were compared to the Level of Service criteria that were previously developed for the study area roadways from the draft Foresthill Divide Community Plan. As shown in Table 3.6-15, two sections of Foresthill Road are projected to operate at LOS "D" which is considered a potentially significant impact under the draft Foresthill Community Plan.

With the development of the project site, additional traffic is added to the study area roadways. The two roadway segments on Foresthill Road are expected to continue LOS "D" operations. In addition, the Foresthill Road segment between the Idle Wheels Mobile Home Park and Mosquito Ridge Road is projected to deteriorate to LOS "D" operations. However, since the County has adopted LOS "D" on this section of roadway, projected operations meet County standards and therefore no improvements are needed as a result of project development.

If LOS "C" operations were to be maintained on these two impacted sections of Foresthill Road under the "Plus Project Plus Additional Non-Residential Project" development scenario, a further reduction in the proposed housing would be required. Under the "Future Plus Project Plus Additional Non-Residential" development condition, the future traffic projections on Foresthill Road would need to be reduced by a total of about 910 daily trips. This 910 ADT reduction would equate to a development reduction of about 175 single-family homes (920 ADT). This is an additional reduction of 15 homes over the 160 home reduction needed for future no-project conditions. Alternatively, the project proponents could propose to reduce the number of age-restricted homes. To achieve a reduction of 910 daily trips would require that 326 less age restricted homes be proposed.

With development of the project site under future conditions, the resulting Level of Service on Foresthill Road is "D" on the section that lies west of Spring Garden Road to Foresthill Bridge. As the Community Plan Policy 5.1-1 requires LOS "C" operations be maintained on Foresthill Road between Auburn and the Idle Wheels Mobile Home Park, this is considered a ***potentially significant impact.***

With development of the project and the additional off-site retail office uses, traffic volumes on study area roadways are projected to increase. In the event that the additional off-site retail and commercial development does not occur, there would be an even greater increase in traffic. Operations on Foresthill Road between Auburn and Spring Garden Road are projected to remain at LOS "D."

Table 3.6-15
Daily Roadway Traffic Volumes and Levels of Service
Future Base and Future Plus Project Conditions

Roadway	Location	Criteria	Future Base			Future Plus Project		
			LOS C Threshold	Daily Traffic	LOS	LOS C Threshold	Daily Traffic	LOS
Foresthill Road	Foresthill Bridge to Drivers Flat Rd	Rural w/39% climbing	10,710	11,400	D	11,400	12,200	D
Foresthill Road	Drivers Flat to Spring Garden Rd	Rural w/40% climbing	10,880	11,700	D	11,590	12,500	D
Foresthill Road	Spring Garden to Todd Valley (W)	Rural w/71% climbing	18,540	9,900	C	19,750	10,800	C
Foresthill Road	Todd Valley (W) to Idle Wheels Mobile Home Park	Rural w/43% climbing	11,450	10,200	C	12,190	11,500	C
Foresthill Road	Idle Wheels Mobile Home Park to Mosquito Ridge Rd	Arterial	12,000	10,800	C	12,780	13,700	D
Foresthill Road	Mosquito Ridge to Yankee Jim's Rd	Arterial	12,000	9,100	B	12,780	10,900	B
Foresthill Road	Yankee Jim's Rd to Blackhawk Ln	Arterial	12,000	6,300	A	12,780	9,100	B
Foresthill Road	Blackhawk Ln to Ebberts Ranch Rd	Arterial	12,000	3,050	A	12,780	3,150	A
Foresthill Road	Ebberts Ranch to Michigan Bluff	Arterial	12,000	1,450	A	12,780	1,550	A
Foresthill Road	E. of Michigan Bluff Rd	Arterial	12,000	1,100	A	12,780	1,150	A
McKeon-Ponderosa	S. of Foresthill Rd	Rural w/out passing	6,400	1,700	B	6,820	1,700	B
Spring Garden Rd	N. of Foresthill Rd	Rural-Mountainous	4,200	1,050	B	4,470	1,050	B
Happy Pines Dr	S. of Foresthill Rd	Rural w/out passing	6,400	1,450	B	6,820	1,400	B
Todd Valley Rd (W)	S. of Foresthill Rd	Rural w/out passing	6,400	3,100	B	6,820	3,050	B
Todd Valley Rd (E)	S. of Foresthill Rd	Rural w/out passing	6,400	500	A	6,820	500	A
Mosquito Ridge Rd	S. of Foresthill Rd	Rural-Mountainous	4,200	1,350	A	4,470	1,750	B
Yankee Jim's Rd	N. of Race Track St	Rural-Mountainous	4,200	1,550	B	4,470	2,200	B
Main St	S. of Foresthill Rd	Arterial	12,000	900	A	12,780	2,000	A
Michigan Bluff Rd	S. of Foresthill Rd	Rural w/out passing	6,400	400	A	6,820	400	A
Race Track St	N. of Foresthill Rd	Arterial	12,000	1,350	A	12,780	1,800	A
Todd Valley Connection	Between Todd Valley and Foresthill	Rural w/out passing	6,400	900	A	6,820	1,050	A
Spring Garden Connection (Powerline Rd)	E. of Spring Garden Rd	Rural-Mountainous	4,200	150	A	4,470	150	A
Spring Garden Connection (Powerline Rd)	N. of Foresthill Rd adjacent to high school	Arterial	12,000	1,850	A	12,780	3,800	A

Mitigation Measure

Implementation of the following measures will reduce impacts on the Foresthill roadways to a *less than significant level:*

3.6.3a. *"Fair Share" traffic mitigation fees shall be paid in order to provide sufficient funding for roadway improvements necessary to maintain the Level of Service "C" on Foresthill roadways or the project reduced in size in order to maintain Level of Service "C."*

3.6.3b. *The Specific Plan shall identify a mechanism to require periodic review of the amount of off-site retail and office uses that are being constructed. In the event that the off-site development anticipated in this analysis does not occur, the Specific Plan shall be modified to include phasing of future development on the site that restricts the development of residential units, linking this development to the corresponding development of additional commercial/retail and/or to include the payment of additional mitigation fees to cover the costs of additional transportation improvements.*

Impact 3.6.4 Need for new traffic signals in the Foresthill community as a result of the proposed project under Future Base Conditions and Future Plus Project conditions.

Future Signal Warrants

Projected daily roadway volumes were compared to the daily traffic warrant contained in the Caltrans Traffic Manual to determine if traffic signals would eventually be needed at any of the intersections within the study area. Based on these daily traffic projections, three (3) intersections are projected to meet warrants for signalization under the future base conditions, which is considered a significant impact under the draft Foresthill Community Plan. Development on the project site will contribute to the need for these signals and will require a "fair share" contribution to the installation of those signals other improvements, such as roundabouts. These three intersections include:

1. Foresthill Road/McKeon-Ponderosa Way
2. Foresthill Road/Todd Valley Road (West)
3. Foresthill Road/Powerline Road

Under the "Plus Project" scenario, the Foresthill Road/Race Track Street and the Foresthill Road/Mosquito Ridge Road intersections also meet daily warrants for signalization, which is considered a ***significant impact.***

Mitigation Measure

Implementation of the following measure will reduce the impact on this intersection to a *less than significant level:*

3.6.4a. *Fair share payments shall be made toward the installation of traffic signals or other improvements when signal warrants are met. If traffic signals become necessary on*

Foresthill Road, utilize control mechanisms that minimize the delay of through traffic, especially during non-commute hours.

3.6.4b. *The Specific Plan shall identify a mechanism to require periodic review of the amount of off-site retail and office uses that is being constructed. In the event that the off-site development anticipated in this analysis does not occur ,the Specific Plan shall be modified to include phasing of future development on the site that restricts the development of residential units, linking this development to the corresponding development of additional commercial/retail and/or to include the payment of additional mitigation fees to cover the costs of additional transportation improvements.*

Impact 3.6.5 Potential decrease in the Level of Service at four key intersections in the vicinity of the I-80/Auburn Ravine Road/Foresthill Road interchange as well as the freeway facilities at that interchange under Existing Plus Project conditions.

Intersection Level of Service – Existing + Project

Table 3.6-16 presents the AM and PM peak hour levels of service at each study intersection under Existing + Project conditions. See Appendix I of this EIR for the technical calculation worksheets.

In the AM peak hour, addition of the project-generated traffic results in no change in Level of Service at three of the study intersections: Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp, Auburn Ravine Road/I-80 Westbound Off-ramp, and Auburn Ravine Road/I-80 Eastbound Ramps. Those three study locations will continue to operate at LOS "A" or "B." The intersection of Auburn Ravine Road/Foresthill Road/Lincoln Way will decline from LOS "C" to LOS "D" in this time period.

In the PM peak hour, the intersection of Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp will decline from LOS "B" to LOS "C" and the intersection of Auburn Ravine Road/Foresthill Road/Lincoln Way will decline from LOS "C" to LOS "D". The intersection of Auburn Ravine Road/I-80 Eastbound Ramps will continue to operate at LOS "D", while Auburn Ravine Road/I-80 Westbound Off-ramp is projected to have a slightly lower average delay value and, therefore, to improve from LOS "B" to LOS "A". While it may seem unlikely that adding traffic to an intersection would result in a lower delay value, in this case the project-generated traffic will be added to individual traffic movements having low delay values.

Because the overall intersection delay value is based on a volume-weighted average of all movements, adding traffic to low-delay movements can sometimes result in a slight decrease in the intersection's overall weighted average delay value. In a practical sense, drivers at this location will perceive little or no change in the intersection's operation.

Thus, with the addition of the project-generated traffic, all of the study intersections will operate within the LOS "D" standard used in this analysis.

Table 3.6-16
Intersection Level of Service Summary
Existing Plus Project Conditions

Intersection	Traffic Control	AM Peak Hour				PM Peak Hour			
		Existing Conditions		Existing Plus Project		Existing Conditions		Existing Plus Project	
		Delay[1]	LOS[2]	Delay	LOS	Delay	LOS	Delay	LOS
Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp	Signal	15.5	B	16.0	B	19.2	B	20.3	C
Auburn Ravine Road/I-80 Westbound Off-ramp	Signal	12.3	B	13.1	B	10.2	B	10.0	A
Auburn Ravine Road/I-80 Eastbound Ramps	Signal	7.1	A	7.5	A	36.6	D	49.7	D
Auburn Ravine Road/Foresthill Road/Lincoln Way	Signal	22.8	C	36.4	D	33.9	C	43.7	D

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*,2000.
[2] Average control delay (seconds per vehicle)
[3] Level of Service

Freeway Mainline Level of Service – Existing + Project

The results of the analysis of I-80 mainline operations in the AM and PM peak hours under Existing + Project conditions are summarized in Table 3.6-17. See Appendix I of this EIR for the Level of Service worksheets.

All of the tested freeway segments will continue to operate at LOS "A" or "B" in both peak-hour periods. Addition of the project-generated traffic will result in only slight increases in the freeway segment density values, ranging from 0.1 to 0.4 passenger cars per mile per lane.

Therefore, all of the tested freeway segments will continue to operate at acceptable Levels of Service under this analysis scenario.

Table 3.6-17
Freeway Mainline Level of Service Summary
Existing Plus Project Conditions

	Eastbound				Westbound			
	Existing Conditions		Existing Plus Project		Existing Conditions		Existing Plus Project	
	Density [1]	LOS [2]	Density	LOS	Density	LOS	Density	LOS
AM Peak Hour								
North of Auburn Ravine Rd.	9.6	A	9.9	A	11.2	B	11.4	B
South of Auburn Ravine Rd.	9.0	A	9.2	A	13.0	B	13.3	B
PM Peak Hour								
North of Auburn Ravine Rd.	14.6	B	14.9	B	11.2	B	11.3	B
South of Auburn Ravine Rd.	16.1	B	16.5	B	12.3	B	12.5	B

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*,2000.
[2] In passenger cars per mile per lane
[3] Level of Service

Freeway Ramp Junction Level of Service – Existing + Project

The results of the analysis of the freeway ramp junctions for Existing + Project conditions in the AM and PM peak hours are summarized in Table 3.6-18. See Appendix I of this EIR for the Level of Service worksheets.

All of the freeway ramp junctions will operate at LOS "B" in the AM peak hour, which is unchanged from existing conditions. Addition of the project-generated traffic will result in maximum density increases of 0.5 passenger cars per mile per lane.

In the PM peak hour, the Levels of Service will be similarly unchanged. Three of the ramps will be at LOS "B" and one at LOS "C." The project-related increase in density in the vicinity of the ramps will range from 0.2 to 0.7 passenger cars per mile per lane.

Table 3.6-18
Freeway Ramp Junction Level of Service Summary[1]
Existing Plus Project Conditions

	AM Peak Hour				PM Peak Hour			
	Existing Conditions		Existing Plus Project		Existing Conditions		Existing Plus Project	
Freeway Ramp	Density[2]	LOS[3]	Density	LOS	Density	LOS	Density	LOS
I-80 Westbound On-ramp	16.6	B	17.1	B	15.5	B	15.8	B
I-80 Westbound Off-ramp	14.4	B	14.7	B	14.4	B	14.6	B
I-80 Eastbound On-ramp	12.4	B	12.9	B	17.5	B	18.0	B
I-80 Eastbound Off-ramp	11.8	B	12.0	B	20.6	C	21.3	C

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] In passenger cars per mile per lane
[3] Level of service

As noted above, the study intersections are all expected to operate at LOS "D" or better under Existing + Project conditions. In addition, the I-80 mainline freeway segments will operate at LOS "A" or "B", and the freeway ramp junctions will operate at LOS "C" or better. Although in some cases the freeway ramp junctions operate at lower Levels of Service than the adjoining freeway mainline segment, this condition was not caused by the project-generated traffic; it already occurred under existing conditions. Therefore, this impact will be ***less than significant***.

Mitigation Measure

No mitigation measures are required.

Cumulative Conditions Analysis

This section describes the results of the analysis of study area traffic operations under cumulative conditions in the PM peak hour. No AM peak hour analysis has been conducted, as AM peak hour traffic projections are not provided by Placer County's General Plan travel demand forecasting model. This analysis reflects the level of development anticipated in Placer County through the year 2020. Analyses are presented for two scenarios: (1) Cumulative No Project conditions, which reflect the level of development and related traffic volumes associated with the revised version of the Foresthill Divide Community Plan (which is currently being updated), and (2) Cumulative + Project conditions, reflecting the addition of the traffic generated by the proposed Forest Ranch land uses to those "no project" volumes.

Planned Roadway Improvements

Consultation with Placer County staff identified the following roadway improvements that will be constructed at the study intersections prior to the year 2020:

- Widening of the I-80/Auburn Ravine Road overcrossing to four lanes – This $2,243,000 improvement is listed in the *Placer County Regional Transportation Plan – 2022* (Placer County Transportation Planning Agency, December 2001), and is planned to occur by 2010;

- A new eastbound right-turn lane at Auburn Ravine Road/Lincoln Way (i.e., conversion of a combined through/right-turn lane to separate through and right-turn lanes); and

- Dual northbound left-turn lanes on Lincoln Way at Auburn Ravine Road.

Figure 3.6-8 shows the modified lane configurations at the study intersections resulting from implementation of these planned improvements, which are assumed to be in place for both cumulative analysis scenarios.

Cumulative No Project Conditions

Traffic volumes for Cumulative No Project conditions were taken from the traffic analyses conducted with regard to the Foresthill Divide Community Plan. (Reference: Martin, Rivett & Olson, Inc., *Supplemental Traffic Analysis – Foresthill Divide Community Plan*, July 3, 2003 and kdAnderson Transportation Engineers, *Foresthill Community Plan DEIR Transportation and Circulation Element*, Updated April 8, 2003.) The estimates in those documents were based in part on future traffic volume estimates provided by Placer County Department of Public Works staff using the General Plan travel demand forecasting model.

Figure 3.6-8 illustrates the Cumulative No Project PM peak hour traffic volumes.

Intersection Level of Service

In the PM peak hour, LOS "B" is projected at the intersections of Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp and Auburn Ravine Road/I-80 Westbound Off-ramp. The intersection of Auburn Ravine Road/I-80 Eastbound Ramps is expected to operate at LOS "C" and Auburn Ravine Road/Foresthill Road/Lincoln Way is expected to operate at LOS "D." Thus, implementation of the Foresthill Divide Community Plan, combined with the roadway improvements described above, will result in acceptable operations at all four study intersections under Cumulative No Project conditions.

Table 3.6-19 summarizes the intersection Level of Service results for Cumulative No Project conditions. See Appendix I of this EIR for the calculation worksheets.

Table 3.6-19
Intersection Level of Service Summary[1]
Cumulative No Project Conditions

Intersection	Traffic Control	PM Peak Hour	
		Delay[2]	LOS[3]
Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp	Signal	18.0	B

Intersection	Traffic Control	PM Peak Hour	
		Delay[2]	LOS[3]
Auburn Ravine Road/I-80 Westbound Off-ramp	Signal	12.2	B
Auburn Ravine Road/I-80 Eastbound Ramps	Signal	31.2	C
Auburn Ravine Road/Foresthill Road/Lincoln Way	Signal	49.8	D

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] Average control delay (seconds per vehicle)
[3] Level of service

Freeway Mainline Level of Service

The results of the analysis of I-80 mainline operations in the PM peak hour under Cumulative No Project Conditions are summarized in Table 3.6-20. See Appendix I of this EIR for the Level of Service worksheets.

The eastbound segments are both projected to operate at LOS "C" under Cumulative No Project conditions, while the westbound direction will operate at LOS "B." These results indicate acceptable operations under this scenario.

Table 3.6-20
Freeway Mainline Level of Service Summary[1]
Cumulative No Project Conditions

I-80 Segment	PM Peak Hour			
	Eastbound		Westbound	
	Density[2]	LOS[3]	Density	LOS
North of Auburn Ravine Road	23.1	C	15.5	B
South of Auburn Ravine Road/Foresthill Road	25.1	C	17.1	B

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] In passenger cars per mile per lane
[3] Level of service

Freeway Ramp Junction Level of Service

The results of the PM peak hour analysis of the freeway ramp junctions are summarized in Table 3.6-21. See Appendix I of this EIR for the Level of Service worksheets.

All of the ramps will be at LOS "D" or better. Both on-ramps will operate at LOS "C", while the westbound off-ramp is projected to operate at LOS "B" and the eastbound off-ramp is expected to operate at LOS "D."

Table 3.6-21
Freeway Ramp Junction Level of Service Summary[1]
Cumulative No Project Conditions

Freeway Ramp	PM Peak Hour	
	Density[2]	LOS[3]
I-80 Westbound On-ramp	21.0	C
I-80 Westbound Off-ramp	19.7	B
I-80 Eastbound On-ramp	26.4	C
I-80 Eastbound Off-ramp	29.4	D

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] In passenger cars per mile per lane
[3] Level of service

Impact 3.6.6 Potential decrease in the Level of Service at four key intersections in the vicinity of the I-80/Auburn Ravine Road/Foresthill Road interchange as well as the freeway facilities at that interchange under Cumulative + Project conditions.

Cumulative + Project Conditions

The following sections address the effects of adding the project-generated traffic to the Cumulative No Project volumes derived above.

Trip Generation

The project-generated PM peak hour traffic volumes for cumulative conditions were developed based on daily traffic information presented in Appendix H of this EIR. The daily traffic volumes were converted to PM peak hour figures using a process similar to that described above for Existing + Project conditions.

According to Table 9 in Appendix H of this EIR, Foresthill Road (east of the Foresthill Bridge) is projected to carry approximately 11,400 vehicles per day (VPD) under Cumulative No Project conditions. With full implementation of the proposed Forest Ranch project, the daily traffic volume at that location is estimated to be 12,200 VPD, indicating a net increase of 800 VPD. As described in detail in Appendix H of this EIR, this relatively low estimate for project-generated traffic is associated with the expected growth of non-residential land uses within the Foresthill community. Consequently, a greater proportion of the residents' needs (with respect to jobs, shopping opportunities, and medical and dental care, for example) will be satisfied within the local community. As a result, fewer trips will be generated between the Foresthill residential areas and the commercial areas in and around Auburn. It is anticipated that this additional non-residential development will occur after the residential units are occupied. This will result in

traffic impacts worsening in the short term, but improving over time as the non-residential development is built.

Assuming, as derived earlier, that slightly over 9.5 percent of the net daily project-generated traffic will occur in the PM peak hour, this daily traffic volume increase translates to 76 PM peak hour trips. Using the directional orientation parameters developed earlier, about 60 percent of the project-generated PM peak hour traffic will be eastbound and 40 percent will be westbound. Thus, approximately 46 additional eastbound trips and 30 additional westbound trips will be generated in the PM peak hour as a result of full implementation of the proposed Forest Ranch project under cumulative conditions.

The project-generated traffic volumes were assigned to the study intersections using a trip distribution derived from the Cumulative No Project conditions traffic patterns. Because traffic patterns in the vicinity of the I-80/Auburn Ravine Road/Foresthill Road interchange are expected to change somewhat between now and the year 2020, the distribution of project-generated trips is expected to be slightly different than was used in the Existing + Project analysis. The cumulative conditions trip distribution is shown on Figure 3.6-9. Figure 3.6-10 illustrates the Cumulative + Project traffic volume estimates resulting from assignment of the proposed project-generated traffic using this distribution.

Intersection Level of Service

Table 3.6-22 presents the results of the intersection Level of Service analysis for the Cumulative + Project scenario. See Appendix I of this EIR for the calculation worksheets.

Table 3.6-22
Intersection Level of Service Summary[1]
Cumulative Plus Project Conditions

Intersection	Traffic Control	Cumulative No Project		Cumulative Plus Project	
		Delay[2]	LOS[3]	Delay	LOS
Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp	Signal	18.0	B	18.4	B
Auburn Ravine Road/I-80 Westbound Off-ramp	Signal	12.2	B	12.2	B
Auburn Ravine Road/I-80 Eastbound Ramps	Signal	31.2	C	32.9	C
Auburn Ravine Road/Foresthill Road/Lincoln Way	Signal	49.8	D	53.0	D

Notes: [1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] Average control delay (seconds per vehicle)
[3] Level of service

No change in intersection Level of Service is anticipated with the addition of the project-generated traffic. The two westernmost study intersections are expected to remain at LOS "B" under Cumulative + Project conditions. The intersection of Auburn Ravine Road/I-80 Eastbound

Ramps is projected to operate at LOS "C," as under Cumulative No Project conditions. At the intersection of Auburn Ravine Road/Foresthill Road/Lincoln Way, the Plan-generated traffic results in no change in LOS compared to Cumulative No Project conditions; it is projected to operate at LOS "D" under both scenarios.

Thus, the four study locations will meet the LOS "D" standard established for this study, and no significant traffic impacts will result from implementation of the proposed Forest Ranch project. As noted earlier, the LOS "D" standard used in this analysis is more stringent than has been defined by Placer County.

Freeway Mainline Level of Service

The results of the analysis of I-80 mainline operations in the PM peak hour under Cumulative + Project conditions are summarized in Table 3.6-23. See Appendix I of this EIR for the Level of Service worksheets.

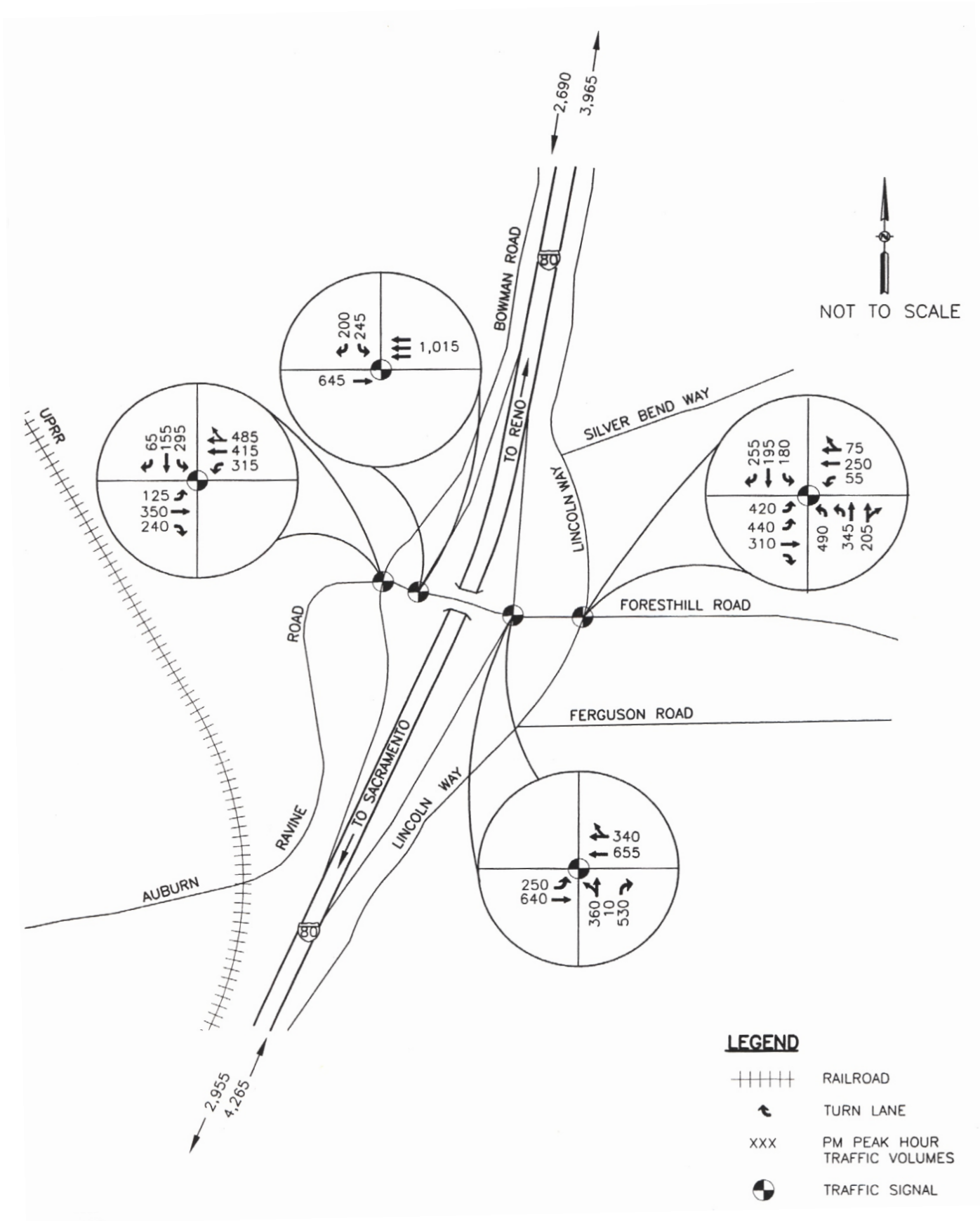
Addition of the project-generated traffic to the I-80 freeway mainline will result in no perceptible degradation in operations. In the eastbound direction, neither study segment will have a change in Level of Service, and little or no change in traffic density is projected. In the westbound direction, only a minor increase in density (0.1 passenger car per mile per lane) is projected north of Auburn Ravine Road, and no change is expected south of that location. All of the freeway mainline segments evaluated will operate at LOS "B" or "C" with addition of the project-generated traffic.

Table 3.6-23
Freeway Mainline Level of Service Summary[1]
Cumulative Plus Project Conditions

	PM Peak Hour							
	Eastbound				Westbound			
	Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project	
I-80 Segment	Density[2]	LOS[3]	Density	LOS	Density	LOS	Density	LOS
North of Auburn Ravine Rd.	23.1	C	23.1	C	15.5	B	15.6	B
South of Auburn Ravine Rd.	25.1	C	25.2	C	17.1	B	17.1	B

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] In passenger cars per mile per lane
[3] Level of service

Freeway Ramp Junction Level of Service



Source: Martin Rivett Olson Consulting Engineers, Quad Knopf, Inc.

Quad Knopf

PM Peak Hour Traffic Volumes
Cumulative No Project Conditions

Figure 3.6-8

Job No.: 01576

Table 3.6-24 presents the results of the analysis of the freeway ramp junctions for Cumulative + Project conditions in the PM peak hour. See Appendix I of this EIR for the Level of Service worksheets.

As with the freeway mainline, only minor changes in traffic density are foreseen. All of the freeway ramps will continue to operate at the same Level of Service found under Cumulative No Project conditions. Although certain of the ramp junctions will operate at lower Levels of Service than the corresponding mainline freeway segment, this condition is not associated with addition of the project-generated traffic, as similar conditions were found for the Cumulative No Project scenario.

Table 3.6-24
Freeway Ramp Junction Level of Service Summary[1]
Cumulative Plus Project Conditions

	PM Peak Hour			
	Cumulative No Project		Cumulative Plus Project	
Freeway Ramp	Density[2]	LOS[3]	Density	LOS
I-80 Westbound On-ramp	21.0	C	21.1	C
I-80 Westbound Off-ramp	19.7	B	19.7	B
I-80 Eastbound On-ramp	26.4	C	26.4	C
I-80 Eastbound Off-ramp	29.4	D	29.5	D

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] In passenger cars per mile per lane
[3] Level of service

The Cumulative Conditions analysis revealed that all four study intersections are expected to operate at LOS "D" or better under Cumulative + Project conditions. Similarly, the I-80 freeway mainline and the on- and off-ramps at the I-80/Auburn Ravine Road/Foresthill Road interchange will continue to operate at acceptable Levels of Service. Thus, this impact will be ***less than significant.***

Project Share of Programmed Roadway Improvements

Although the analysis documented here found that no project-related mitigation measures are needed under cumulative conditions, the proposed project could be required to contribute toward the completion of the programmed roadway improvements described earlier that contribute to maintaining acceptable Levels of Service. Those improvements include widening the I-80 overcrossing at Auburn Ravine Road as well as modifications to the intersection of Auburn Ravine Road/Foresthill Road/Lincoln Way.

An analysis was conducted to determine the proposed project's share of the anticipated growth in traffic at those locations. At each location, the volume of project-related traffic under cumulative conditions was divided by the total growth in traffic (as represented by the difference between the Cumulative + Project traffic volume and the Existing Conditions volume). For example, based on information presented in Appendix H of this EIR and the PM peak-hour traffic assignments presented earlier in this report, 28 project-generated trips will traverse the I-80/Auburn Ravine Road overcrossing in the PM peak hour under cumulative conditions (14 in each direction). The total traffic growth on the overpass structure will be 703 vehicle-trips (i.e., 1,933 trips under Cumulative + Project conditions minus 1,230 existing trips). Thus, the project-generated traffic constitutes 4.0 percent of the anticipated growth in traffic and, as such, should be responsible for 4.0 percent of the cost of widening the overcrossing.

Employing a similar process for the intersection of Auburn Ravine Road/Foresthill Road/Lincoln Way indicates that the proposed project will represent 8.4 percent of the expected growth in traffic at that location and could, therefore, be responsible for that portion of the cost of the programmed intersection improvements.

Mitigation Measures

No mitigation measures are required.

Impact 3.6.7 Need for additional or modified transit service as a result of the proposed project.

When the Plan area fully develops, the need for an additional bus or change in bus routes may exist. This need for future transit services will be further exacerbated with development of the proposed project. This is considered a ***significant impact***.

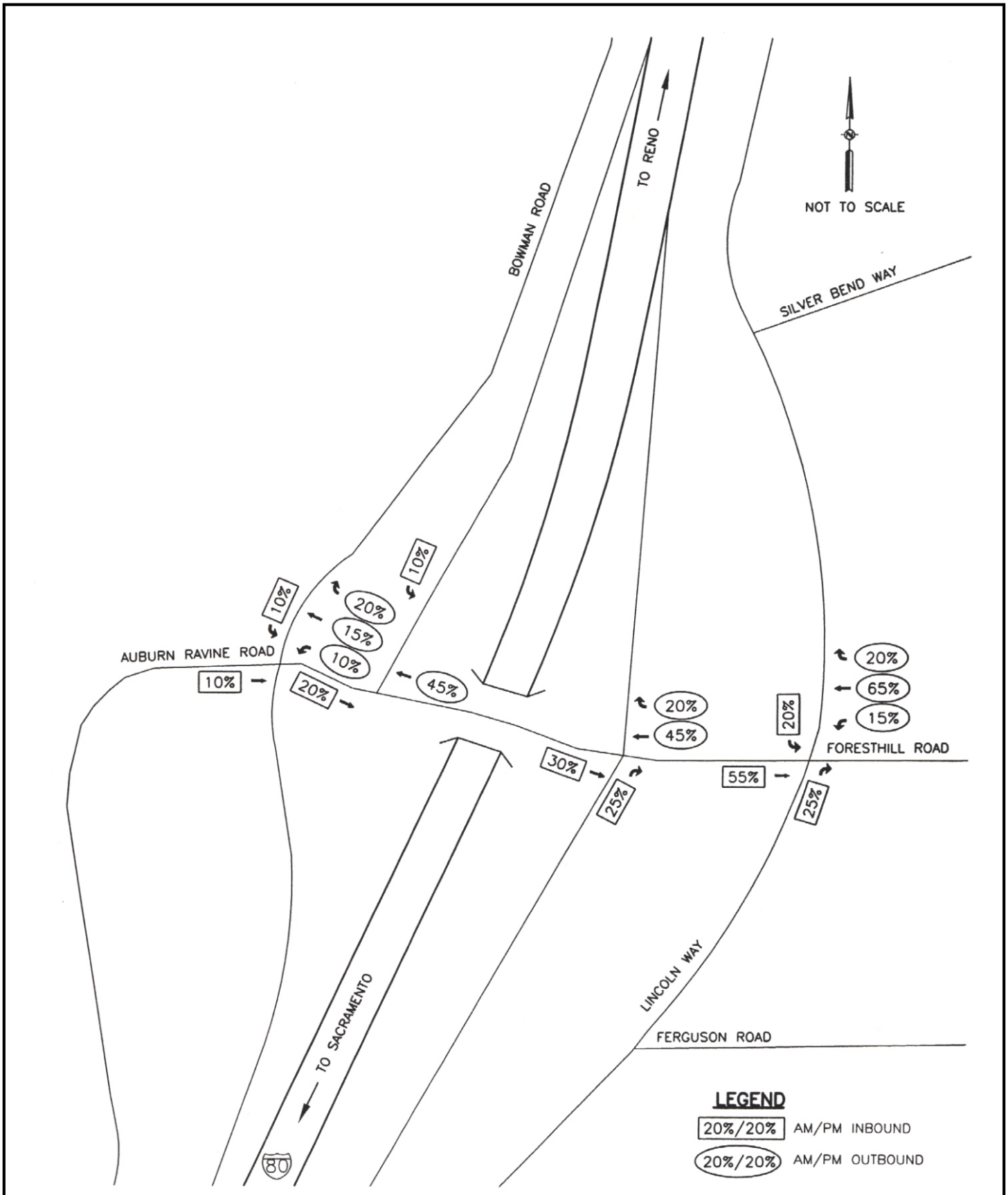
Mitigation Measure

Implementation of the following measure will reduce impacts on transit service to a *less than significant level:*

3.6.7. *One or more sheltered transit stops shall be provided within the project site as a condition of approval of residential development of 100 units or more. The Placer County Public Works Department shall determine the appropriate number and location of sheltered transit stops.*

Impact 3.6.8 Need for additional park and ride spaces as a result of the proposed project.

Currently, the Foresthill community has one designated park and ride lot. Installation of additional park and ride lots would provide motorists wishing to ride share and/or ride transit a central place to meet and leave their vehicles. Assuming 2 percent of the households carpool, a total of approximately 90 carpool spaces would be required as a result of implementation of the Foresthill Divide Community Plan. Development of the project site could potentially add to the



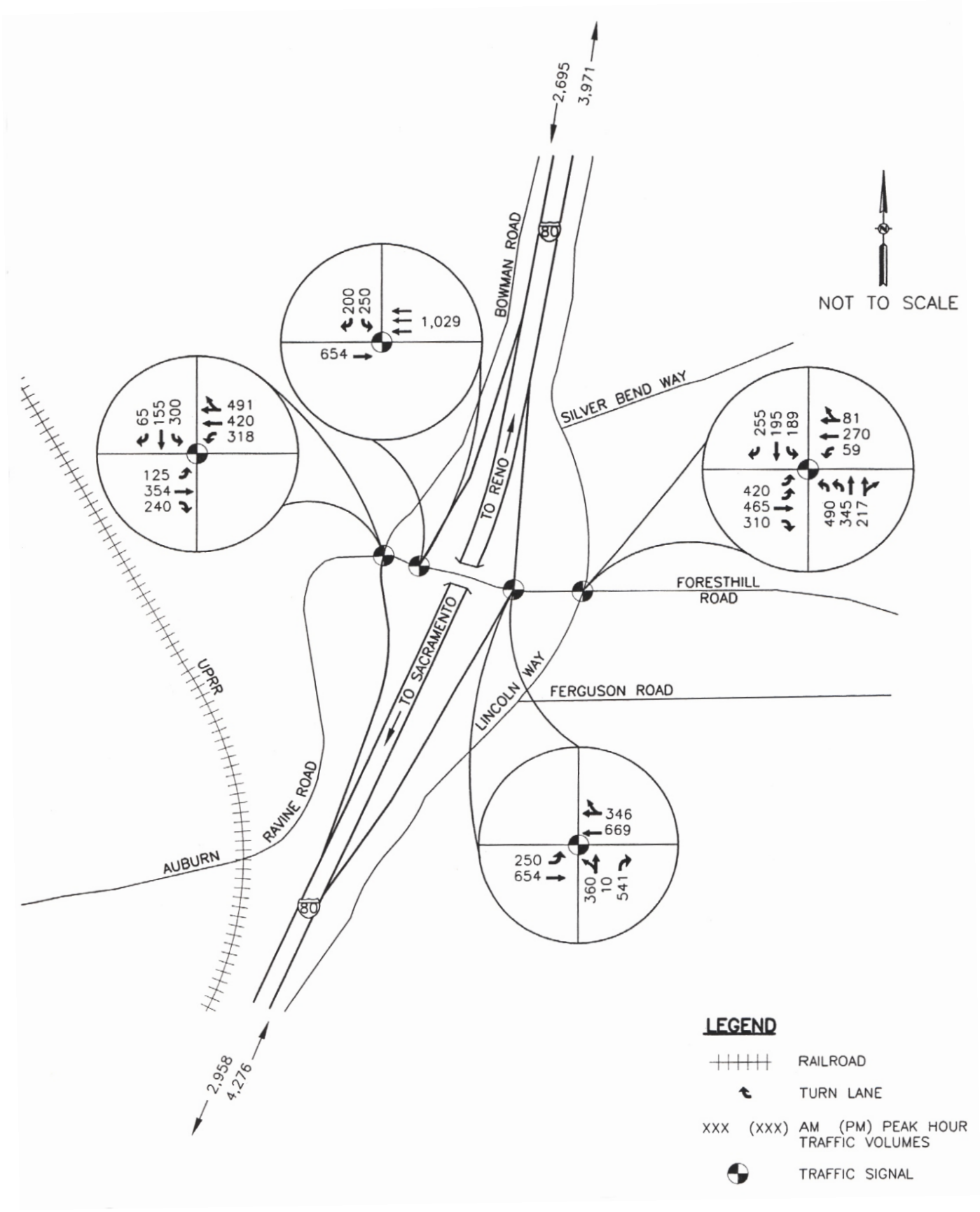
Source: Martin Rivett Olson Consulting Engineers, Quad Knopf, Inc.

Quad Knopf

Project Trip Distribution
Cumulative Conditions

Figure 3.6-9

Job No.: 01576



Source: Martin Rivett Olson Consulting Engineers, Quad Knopf, Inc.

Quad Knopf

PM Peak Hour Traffic Volumes
Cumulative + Project Conditions

Figure 3.6-10

Job No.: 01576

need for an additional 44 park and ride spaces if 2% of all of the households were to carpool. This is considered a ***significant impact***.

Mitigation Measure

Implementation of the following measure will reduce impacts on park and ride lots to a *less than significant level:*

3.6.8. *The project shall provide a public carpool parking facility. Such a lot shall be centrally located to be serviced by transit. This facility shall also be utilized for overflow parking and staging areas for community events. This facility shall be provided as a condition of approval of residential development of 100 units or more. The appropriate location and design of the facility shall be determined by the Placer County Public Works Department.*

Impact 3.6.9 Need for additional pedestrian and bikeway facilities as a result of the proposed project.

With development of the Plan area, the need for both bikeway and pedestrian facilities will increase. This need will be exacerbated by development of the Forest Ranch project. The proposed project, as shown on Figure 2-5, includes 17 miles of community trails and 0.8 mile of wilderness trail. Detailed information regarding the exact locations and design of these trails is not available at this time, and will need to be evaluated at such time as development projects are submitted for approval. Because this trail network cannot be evaluated at this time, this impact is considered ***potentially significant.***

Mitigation Measure

Implementation of the following measure will reduce impacts on bikeway and pedestrian facilities to a *less than significant level:*

3.6.9a. *The Specific Plan shall delineate bikeways and trails on the project site. The project shall contribute its fair share to implement the policies in the draft Foresthill Divide Community Plan.*

3.6.9b. *Separate easements within the project site shall be shown on any proposed tentative maps and shall include space for a five-foot multi-purpose roadside trail, or equivalent off-road trail network to enable children, equestrians, bicyclists, and pedestrians to safely circulate throughout the development.*

3.7 NOISE

3.7.1 SETTING

This section examines the existing noise environment and potential noise-related impacts which may occur as a part of the development of the Forest Ranch project. It was prepared by Bollard and Brennan, Inc., acoustical consultants.

Noise sources due to and upon the project site include roadway traffic and stationary noise sources associated with the commercial uses, the proposed golf course and the recreational vehicle park.

Acoustical Terminology

Noise is often defined simply as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon. Researchers for many years have grappled with the problem of translating objective measurements of sound into directly correlated measures of public reaction to noise. The descriptors of community noise in current use represent simplified, practical measurement tools to gauge community response. Table 3.7-1 provides examples of maximum noise levels associated with common noise sources. Appendix L provides definitions of noise descriptors.

Table 3.7-1
Typical A-Weighted Maximum Sound Levels of Common Noise Sources

Decibels	Description
130	Threshold of pain
120	Jet aircraft take-off at 100 feet
110	Riveting machine at operators position
100	Shot-gun at 200 feet
90	Bulldozer at 50 feet
80	Diesel locomotive at 300 feet
70	Commercial jet aircraft interior during flight
60	Normal conversation speech at 5-10 feet
50	Open office background level
40	Background level within a residence
30	soft whisper at 2 feet
20	Interior of recording studio

A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (Leq), which is the sound level corresponding to a steady-state A-weighted sound level in decibels (dB) containing the same total energy as a time-varying signal over a given time period (usually one hour). The Leq is the foundation of the composite noise descriptors such as Ldn and CNEL, and shows very good correlation with community response to noise.

Two composite noise descriptors are in common use today: Ldn and CNEL. The Ldn (Day-Night Average Level) is based upon the average hourly Leq over a 24-hour day, with a +10 decibel weighting applied to nighttime (10:00 p.m. to 7:00 a.m.) Leq values. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were subjectively twice as loud as daytime exposures. The CNEL (Community Noise Equivalent Level), like Ldn, is based upon the weighted average hourly Leq over a 24-hour day, except that an additional +4.77 decibel penalty is applied to evening (7:00 p.m. to 10:00 p.m.) hourly Leq values. Measured Ldn and CNEL values are generally within 1 dB of one another. The CNEL was developed for the California Airport Noise Regulations, and is normally applied to airport/aircraft noise assessments. The Ldn descriptor is a simplification of the CNEL concept, but the two will usually agree, for a given situation, within 1 dB. Like the Leq, these descriptors are also averages and tend to disguise short-term variations in the noise environment. Because they presume increased evening or nighttime sensitivity, these descriptors are best applied as criteria for land uses where nighttime noise exposures are critical to the acceptability of the noise environment, such as residential developments.

The State Office of Planning and Research Noise Element Guidelines require that major noise sources be identified and quantified by preparing generalized noise contours for current and projected conditions. Significant noise sources include traffic on major roadways and highways, and representative industrial activities and fixed noise sources.

Noise modeling techniques and noise measurements were used to develop generalized Ldn/CNEL or Leq noise contours for the major roadways and fixed noise sources in the Forest Ranch project study area for existing conditions.

Modeling methods have been developed for a number of environmental noise sources including roadways, railroad line operations, railroad yard operations and industrial plants. Such methods produce reliable results as long as data inputs and assumptions are valid. The modeling methods used in this report closely follow recommendations made by the State Office of Noise Control, and were supplemented where appropriate by field-measured noise level data to account for local conditions. The noise exposure contours are based upon annual average conditions. Because local topography, vegetation or intervening structures may significantly affect noise exposure at a particular location, the noise contours should not be considered site-specific.

Existing Roadway Noise

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop Ldn contours for all major roadways. The FHWA Model is the analytical method presently favored for traffic noise prediction by most state and local agencies, including Caltrans. The current version of the model is based upon the CALVENO noise emission factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver and the acoustical characteristics of the site. The FHWA Model predicts hourly Leq values for free-flowing traffic conditions, and is generally considered to be accurate within 1.5 dB. To

predict Ldn values, it is necessary to determine the hourly distribution of traffic for a typical 24-hour day and to adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Traffic data representing annual average traffic volumes for existing conditions were obtained from kdAnderson Transportation Engineers. Using the FHWA methodology, traffic noise levels as defined by Ldn were calculated for existing traffic volumes. Appendix K contains the Highway Traffic Noise Prediction Model Input Data. Distances from the centerlines of selected roadways to the existing 55 dB, 60 dB, and 65 dB Ldn contours are summarized in Table 3.7-2.

Existing Ambient Noise Levels in the Vicinity of the Project Site

A community noise survey was conducted to document noise exposure in different areas of the Forest Ranch project site.

Short-term noise monitoring was conducted at three sites on June 10th and 12th, 2002. Two continuous hourly noise monitoring sites were established on the project site to record day-night statistical noise level trends. The data collected included the Leq, the maximum level during the measurement period (Lmax) and other statistical descriptors. Noise monitoring sites, measured noise levels, and estimated Ldn values at each site are summarized in Table 3.7-3. Figure 3.7-1 shows the noise measurement locations.

Table 3.7-2
Predicted Existing Traffic Noise Level Data

Segment	Description	Distances to Traffic Noise Contours (ft.)		
		55 dB	60 dB	65 dB
Foresthill Road				
1	East of Foresthill Bridge	264	123	57
2	West of Spring Garden Road	268	125	58
3	East of Happy Pines Drive	215	100	46
4	West of Owl Hill Court	228	106	49
5	West of Mosquito Ridge Road	213	99	46
6	West of Yankee Jim's Road	187	87	40
7	East of Yankee Jim's Road	119	55	26
8	West of Blackhawk Lane	89	41	19
9	West of Michigan Bluff Road	64	30	14
10	East of Michigan Bluff Road	46	21	10
McKeon-Ponderosa Way				
11	South of Foresthill Road	98	45	21
Spring Garden Road				
12	North of Foresthill Road	55	25	12
Happy Pines Drive				
13	South of Foresthill Road	89	41	19

Segment	Description	Distances to Traffic Noise Contours (ft.)		
		55 dB	60 dB	65 dB
Todd Valley Road (West)				
14	South of Foresthill Road	144	67	31
Todd Valley Road (East)				
15	South of Foresthill Road	35	16	8
Mosquito Ridge Road				
16	South of Foresthill Road	28	13	6
Yankee Jim's Road				
17	North of Race Track Street	24	11	5
Main Street				
18	South of Foresthill Road	58	27	13
Michigan Bluff Road				
19	South of Foresthill Road	26	12	6
Race Track Street				
20	North of Foresthill Road	70	32	15

Community noise monitoring systems were calibrated with acoustical calibrators in the field prior to use. The systems comply with all pertinent requirements of the American National Standards Institute (ANSI) for Type I sound level meters.

The community noise survey results indicate that typical background noise levels in the project vicinity are in the range of approximately 39 dB Ldn to 57 dB Ldn. Traffic on local roadways is the primary controlling factor for background noise in this area. In general, the Forest Ranch project area could be characterized as very quiet to relatively quiet.

The Leq values in Table 3.7-3 represent the average measured noise levels during the sample periods. The Leq values were the basis of the estimated Ldn values. The L_{max} values show the maximum noise levels observed during the sample periods. The L50 and L90 values represent the noise levels exceeded 50 percent and 90 percent of the time during the sample period.

The continuous monitoring data are shown graphically in Figures 3.7-2 and 3.7-3. The graphs show that ambient noise levels generally reach a minimum during the nighttime hours and increase during the daytime hours as a function of increased traffic and other human activities.

Table 3.7-3
Summary of Measured Noise Levels and Day/Night Average Levels (Ldn)

Site	Location	Time Period	Sound Level, dB				
			Daytime Leq	Daytime L50	Daytime L90	Daytime L_{max}	Calculated or Estimated Ldn
1*	Southwest of Blackhawk Ln. and Foresthill Rd Intersection	6/10-12/2002 Daytime (7am-10pm) Nighttime (10pm-7am)	54	40	32	73	57.1
2*	North of Yankee Jim's Road	6/10-9/2000 Daytime (7am-10pm) Nighttime (10pm-7am)	48	34	30	71	49.3
A	South of Yankee Jim's Road	6/10/2002 6/12/2002 6/12/2002	44 41 40	43 36 35	41 32 32	48 53 54	44
B	North of Blackhawk Lane	6/10/2002 6/12/2002 6/12/2002	40 50 52	39 40 43	38 36 38	46 70 72	50
C	North of Yankee Jim's Road	6/12/2002 6/12/2002	34 38	33 32	32 30	42 52	39

* Continuous Monitoring Site
Note: The Ldn at the short term monitoring locations are estimations based upon daytime measurements alone.

3.7.2 IMPACTS AND MITIGATION MEASURES

Impact Evaluation Criteria

Development which is inconsistent with relevant Placer County General Plan and Foresthill General Plan policies should be considered potentially significant. Relevant General Plan and Community Plan noise policies include the following:

Placer County General Plan Policies

The Placer County General Plan policies pertaining to noise are designed to protect County residents from the harmful and annoying effects of exposure to excessive noise. Those policies which would be applicable to this project are reproduced below:

1. The County shall not allow development of new noise-sensitive uses where the noise level due to non-transportation noise sources will exceed the noise level standards of Table 3.7-4 (Table 9-1 of the Placer County General Plan Noise Element) as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table 3.7-4.

2. The County shall require that noise created by new non-transportation noise sources be mitigated so as not to exceed the noise level standards of Table 3.7-4 (Table 9-1 of the Placer County General Plan) as measured immediately within the property line of lands designated for noise-sensitive uses.

3. Impulsive noise produced by blasting should not be subject to the criteria listed in Table 3.7-4 (Table 9-1 of the Placer County General Plan). Single event impulsive noise levels produced by gunshots or blasting shall not exceed a peak linear overpressure of 122 dB, or a C-weighted Sound Exposure Level (SEL) of 98 dBC. The cumulative noise level from impulsive sounds such as gunshots and blasting shall not exceed 60 dB LCDN or CNEL on any given day. These standards shall be applied at the property line of a receiving land use.

4. The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Table 3.7-5 (Table 9-3 of the Placer County General Pan).

5. Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table 3.7-5 (Table 9-3 of the Placer County General Plan) at the outdoor activity areas or interior spaces of existing noise-sensitive land uses.

6. The County shall implement one or more of the following mitigation measures where existing noise levels significantly impact existing noise-sensitive land uses, or where the cumulative increase in noise levels resulting from new development significantly impacts noise-sensitive land uses:

a. Rerouting traffic onto streets that have available traffic capacity and that do not adjoin noise-sensitive land uses;
b. Lowering speed limits, if feasible and practical;
c. Programs to pay for noise mitigation such as low cost loans to owners of noise-impacted property or establishment of developer fees;
d. Acoustical treatment of buildings; or
e. Construction of noise barriers.

7. Where noise mitigation measures are required to achieve the standards of Tables 3.7-4 or 3.7-5, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered as a means of achieving the noise standards only after all other practical design-related noise mitigation measures have been incorporated into the project.

Subjective Reaction to Changes in Noise Levels

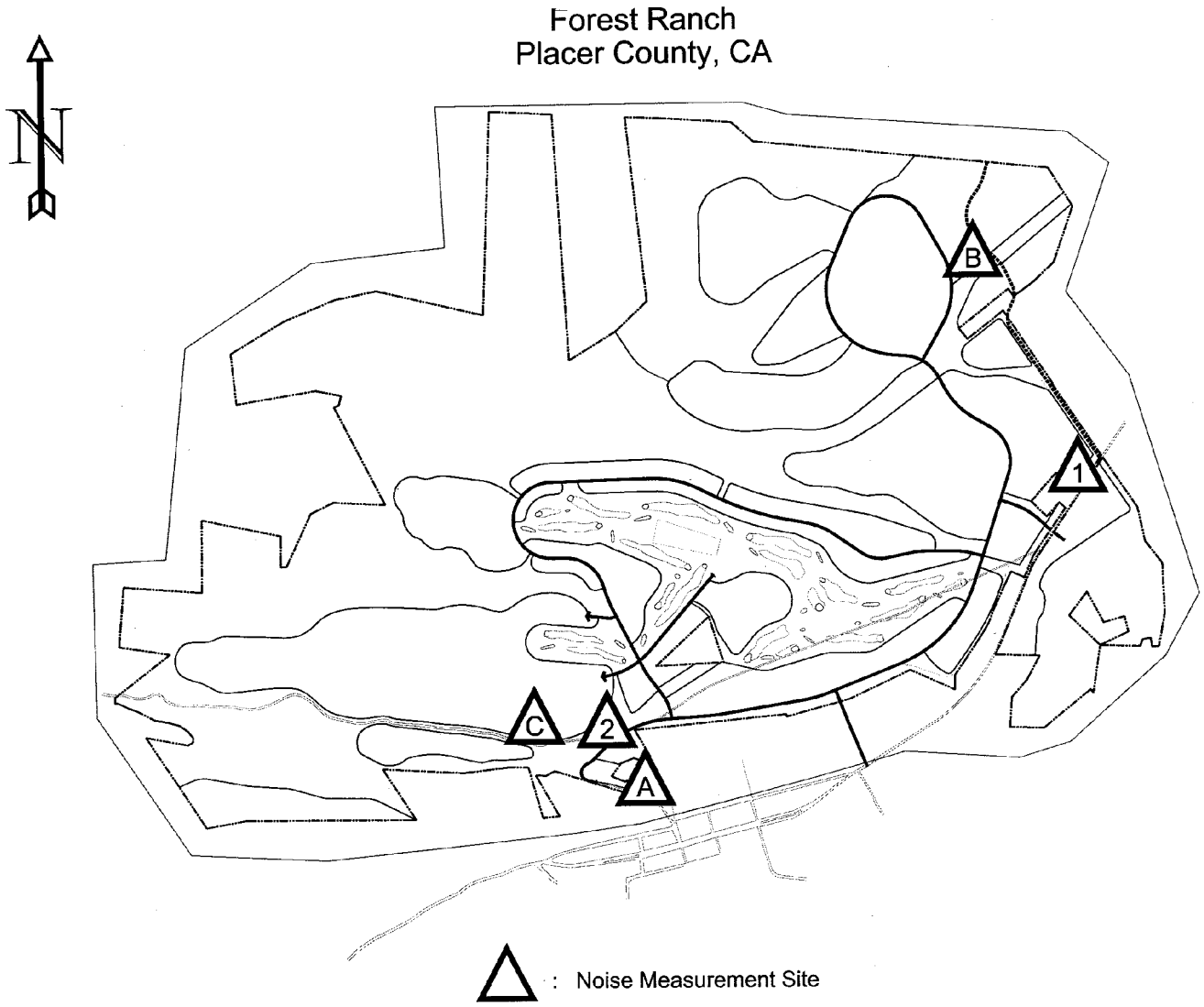
Expected reactions to changes in ambient noise levels have been reported by Egan and others for persons who are exposed to noise sources that are quantified by metrics that define short-term exposure (e.g., hourly L_{eq}, L_{max} and L_n). These metrics are usually used to describe noise impacts due to industrial operations, machinery and other sources that are not associated with transportation. According to Egan and others, an increase of at least 3 dB is usually required before most people will perceive a change in noise levels, and an increase of 5 dB is required before the change will be clearly noticeable. The common practice has been to assume that a minimally perceptible increase of 3 dB represents a significant increase in ambient noise levels.

Table 3.7-4
(Table 9-1 of the Placer County General Plan)
Allowable Ldn Noise Levels Within Specified Zone Districts
Applicable to New Projects Affected by or Including Non-Transportation Noise Sources

Zone District of Receptor	Property Line of Receiving Use	Interior Space
Residential adjacent to industrial	60 dBA	45 dBA
Other Residential	50 dBA	45 dBA
Office/Professional	70 dBA	45 dBA
Neighborhood Commercial	70 dBA	45 dBA

Notes for Table 2:
1. Except where noted otherwise, noise exposures will be those which occur at the property line of the receiving use.
2. Interior spaces are defined as any locations where some degree of noise-sensitivity exists. Examples include all habitable rooms of residences, and areas where communication and speech intelligibility are essential, such as classrooms and offices.

Table 3.7-5
(Table 9-3 of the Placer County General Plan)



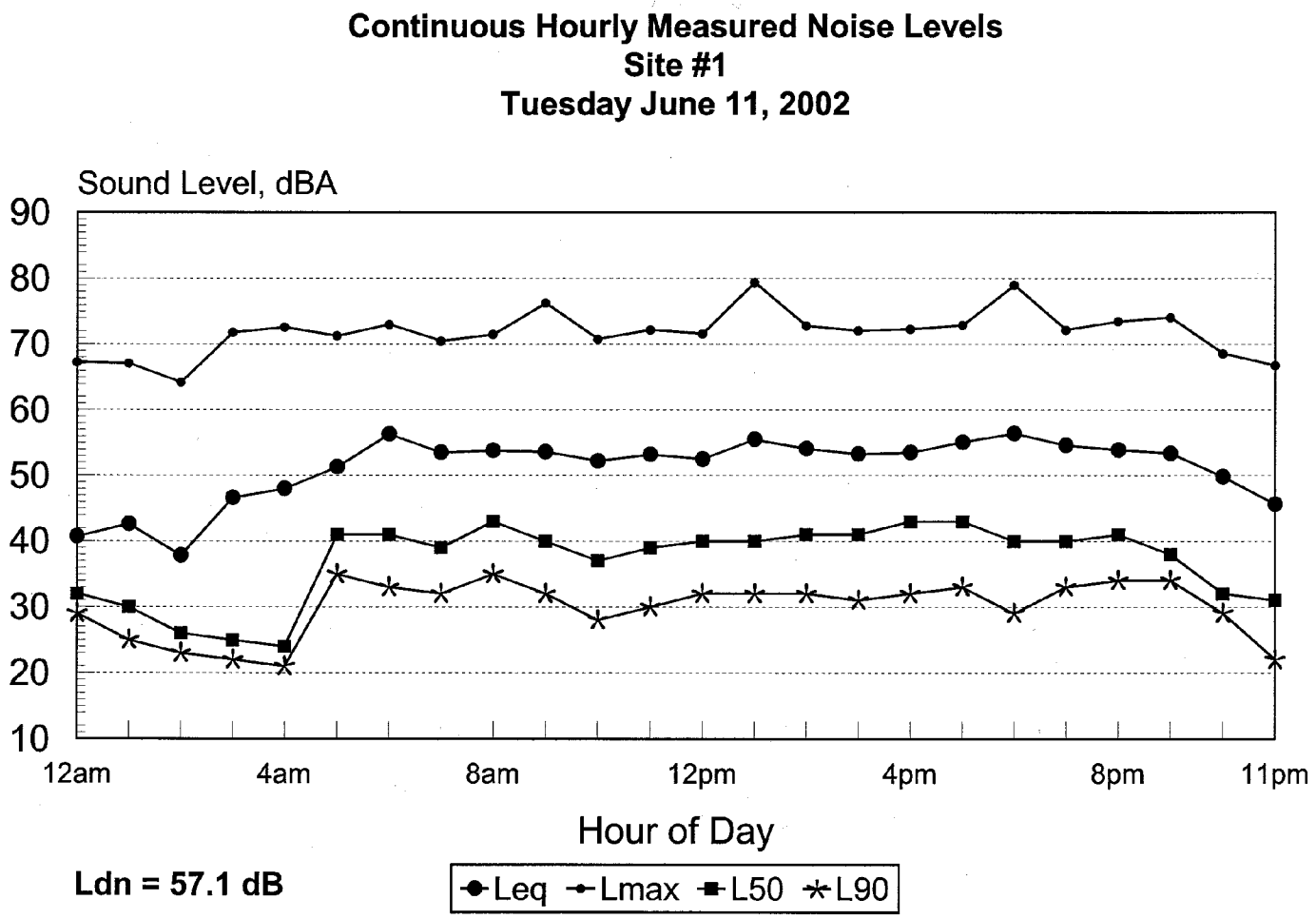
Source: Bollard & Brennan, Inc., 2003.

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FOREST RANCH EIR

Noise Measurement Locations

Figure 3.7-1



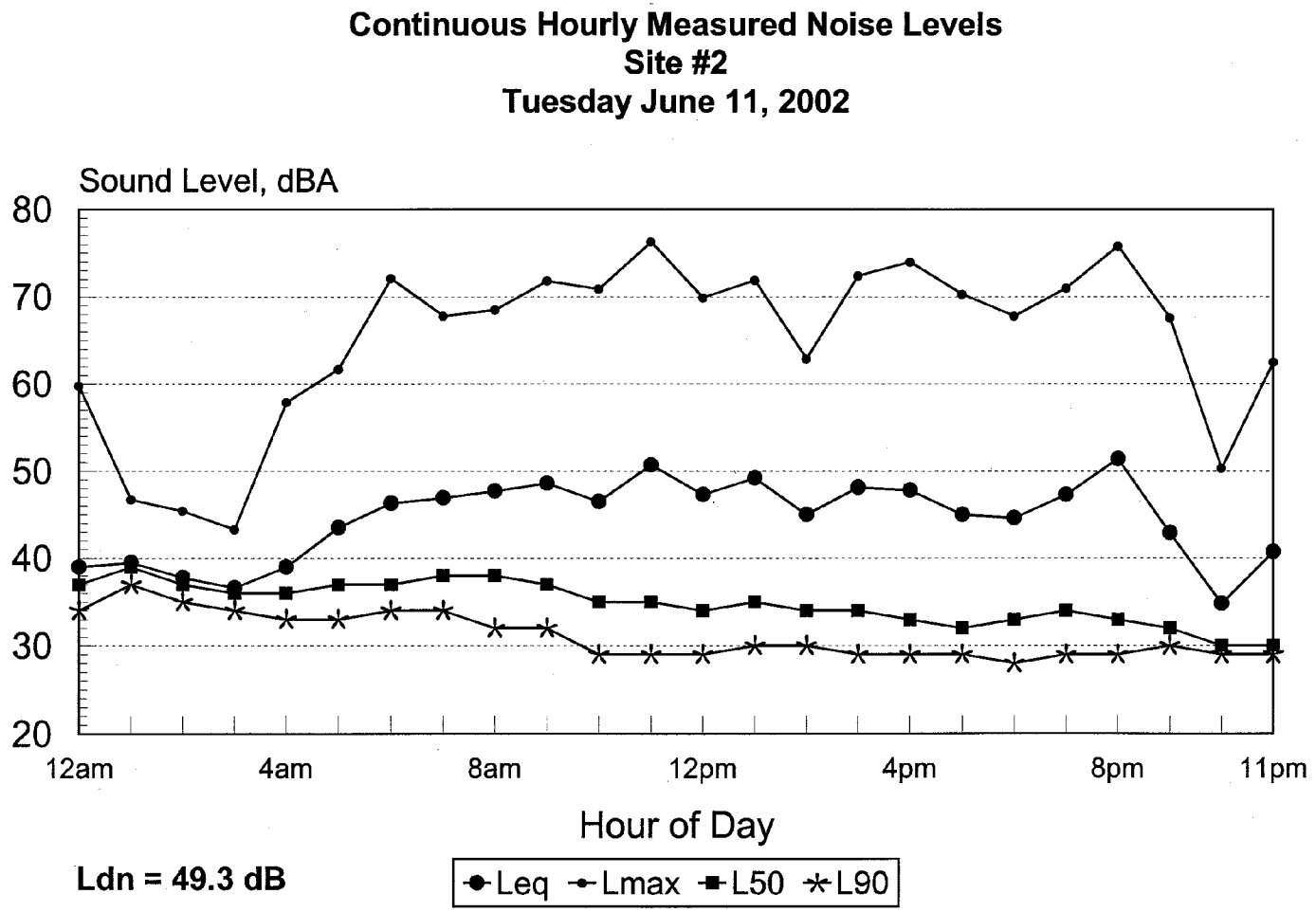
Source: Bollard & Brennan, Inc., 2003.

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FOREST RANCH EIR

Continuous Hourly Measured Noise Levels Site #1

Figure 3.7-2



Source: Bollard & Brennan, Inc., 2003.

Quad Knopf

FOREST RANCH EIR

Continuous Hourly Measured Noise Levels Site #2

Figure 3.7-3

Maximum Allowable Noise Exposure (Ldn)
Transportation Noise Sources

Land Use	Outdoor Activity Areas (a)	Interior Spaces	
	Ldn/CNEL, dB	Ldn/CNEL, dB	Leq, dB (b)
Residential	60 (c)	45	
Transient Lodging	60 (c)	45	--
Hospitals, Nursing Homes	60 (c)	45	--
Theaters, Auditoriums	--	--	--
Churches, Meeting Halls	60 (c)	--	35
Office Buildings	--	--	40
Schools, Libraries, Museums	--	--	45

(a) Where the location of outdoor activity areas is unknown. the exterior noise level standard shall be applied to the property line of the receiving land use.
(b) As determined for a typical worst-case hour during periods of use.
(c) Where it is not possible to reduce noise in outdoor activity areas to 60 Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Table 3.7-6 is based upon recommendations recently (August 1992) made by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. Their recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, it has been assumed for this analysis that they are applicable to all sources of noise that are described in terms of cumulative noise exposure metrics such as the L_{dn} or CNEL.

Table 3.7-6
Significance of Changes

In Cumulative Noise Exposure

Ambient Noise Level Without Project (L_{dn} or CNEL)	Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON), as applied by Bollard & Brennan, Inc.

Foresthill General Plan Goals and Policies

Noise

Goal: To protect the health, safety, and welfare of the Foresthill area residents by providing a livable environment free from excessive noise.

1. Enforce acceptable noise exposure levels for various land use categories adopted in the Placer County Noise Element.

2. Avoid the interface of noise-producing and noise-sensitive land uses.

3. Require implementation of noise abatement techniques on new projects where warranted.

4. Locate noise sensitive land uses within areas of acceptable community noise equivalent levels.

Noise impacts associated with the proposed project are expected to be due to increased traffic on local roadways. Noise impacts on the project site are expected to be due to traffic on roadways, and conflicts between future non-residential land uses and proposed residences on the project site.

Traffic Noise

To describe the Existing + Project traffic noise levels due to and upon the project site, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly Leq values for free-flowing traffic conditions. To predict traffic noise levels in terms of Ldn, it is necessary to adjust the input volume to account for the day/night distribution of traffic.

Traffic volumes for the Existing + Project conditions were provided by kdAnderson Transportation Engineers. A complete listing of the FHWA Model input data is provided in Appendix H. Table 3.7-7 shows the predicted Existing + Project traffic noise levels.

Table 3.7-7 also shows the expected change in traffic noise levels due to the project, when compared to the predicted existing traffic noise levels. Based upon Table 3.7-7, the changes in traffic noise levels ranged between 0 dB Ldn and 13 dB Ldn.

Where a significant increase in noise levels (Based upon Table 4) occurs, the increase has been highlighted in **bold**.

Tables 3.7-8 and 3.7-9 show the predicted Future and Future + Project traffic noise levels. Once again the FHWA model was used for predicting traffic noise levels. Table 3.7-9 also shows the expected increase in traffic noise levels due to the proposed project. Based upon Table 3.7-9, the future traffic associated with the project will not contribute to a significant increase in traffic noise levels.

Table 3.7-7
Predicted Existing + Project Traffic Noise Level Data

Segment	Description	Ldn , dB @ 100'	Increase in Noise Levels, dB	Distance to Traffic Noise Contours (ft.)	
				60 dB	65 dB
Foresthill Road					
1	East of Foresthill Bridge	64	**+3**	194	90
2	West of Spring Garden Road	64	**+3**	197	91
3	East of Happy Pines Drive	64	**+4**	179	83
4	West of Owl Hill Court	64	**+3.5**	183	85
5	West of Mosquito Ridge Road	64	**+4**	177	82
6	West of Yankee Jim's Road	63	+4	169	79
7	East of Yankee Jim's Road	61	**+5**	117	54
8	West of Blackhawk Lane	55	+1	46	22
9	West of Michigan Bluff Road	53	+1	36	17
10	East of Michigan Bluff Road	52	+2.5	31	14
McKeon-Ponderosa Way					
11	South of Foresthill Road	55	0	45	21
Spring Garden Road					
12	North of Foresthill Road	51	0	26	12
Happy Pines Drive					
13	South of Foresthill Road	54	0	41	19
Todd Valley Road (West)					
14	South of Foresthill Road	57	0	66	31

Segment	Description	Ldn , dB @ 100'	Increase in Noise Levels, dB	Distance to Traffic Noise Contours (ft.)	
				60 dB	65 dB
Todd Valley Road (East)					
15	South of Foresthill Road	48	0	16	7
Mosquito Ridge Road					
16	South of Foresthill Road	47	+0.5	14	6
Yankee Jim's Road					
17	North of Race Track Street	59	**+13**	84	39
Main Street					
18	South of Foresthill Road	51	0	25	11
Michigan Bluff Road					
19	South of Foresthill Road	46	0	12	6
Race Track Street					
20	North of Foresthill Road	56	+3	53	25

Stationary Noise Sources

There are a variety of noise sources associated with future development within the project site which have the potential to create noise levels in excess of Placer County noise standards or result in annoyance at existing and future noise-sensitive developments within the project area. Such uses/noise sources include maintenance operations at the golf course, and activities associated with the recreational vehicle park and wastewater treatment plant which may generate noise levels which may exceed acceptable standards.

At the General Plan Amendment/rezoning level, detailed site and grading plans associated with these types of noise sources have not yet been developed. As a result, it is not feasible to identify specific noise impacts associated with these sources. Rather, the potential for these sources to generate excessive or annoying noise levels is identified, and consideration of that potential during the design phases of the development is recommended. Additional discussion and examples of noise generation of some of these types of uses follows:

Table 3.7-8

Predicted Future Traffic Noise Level Data

Segment	Description	Ldn, dB @ 100'	Distance to Traffic Noise Contours (ft.)	
			60 dB	65 dB
Foresthill Road				
1	East of Foresthill Bridge	64	176	82
2	West of Spring Garden Road	64	179	83
3	East of Happy Pines Drive	63	160	74
4	West of Owl Hill Court	63	163	76
5	West of Mosquito Ridge Road	63	169	79
6	West of Yankee Jim's Road	63	151	70
7	East of Yankee Jim's Road	61	118	55
8	West of Blackhawk Lane	58	73	34
9	West of Michigan Bluff Road	55	44	21
10	East of Michigan Bluff Road	54	37	17
McKeon-Ponderosa Way				
11	South of Foresthill Road	55	49	23
Spring Garden Road				
12	North of Foresthill Road	53	36	17
Happy Pines Drive				
13	South of Foresthill Road	55	44	21
Todd Valley Road (West)				
14	South of Foresthill Road	58	74	34
Todd Valley Road (East)				
15	South of Foresthill Road	50	22	10
Mosquito Ridge Road				
16	South of Foresthill Road	55	47	22
Yankee Jim's Road				
17	North of Race Track Street	55	46	22
Main Street				
18	South of Foresthill Road	53	32	15
Michigan Bluff Road				
19	South of Foresthill Road	49	19	9
Race Track Street				
20	North of Foresthill Road	55	42	20
Todd Valley Connection				
21	Todd Valley to Foresthill	53	32	15
Spring Garden Connection				
22	East of Spring Garden Road	45	10	5

Segment	Description	Ldn, dB @ 100'	Distance to Traffic Noise Contours (ft.)	
			60 dB	65 dB
23	North of Foresthill Road	56	52	24

Table 3.7-9
Predicted Cumulative Plus Project Traffic Noise Level Data

Segment	Description	Ldn @ 100'	Increase in Noise Levels, dB	Distance to Traffic Noise Contours (ft.)	
				60 dB	65 dB
Foresthill Road					
1	East of Foresthill Bridge	65	+0.5	225	104
2	West of Spring Garden Road	65	+1.5	226	105
3	East of Happy Pines Drive	65	+1.5	206	96
4	West of Owl Hill Court	65	+1.5	203	94
5	West of Mosquito Ridge Road	65	+1	201	93
6	West of Yankee Jim's Road	64	+1	177	82
7	East of Yankee Jim's Road	63	+1.5	152	71
8	West of Blackhawk Lane	58	+0.5	78	36
9	West of Michigan Bluff Road	56	+1	51	24
10	East of Michigan Bluff Road	54	+1	42	20
McKeon-Ponderosa Way					
11	South of Foresthill Road	55	+1	49	23
Spring Garden Road					
12	North of Foresthill Road	54	+0.5	38	18
Happy Pines Drive					
13	South of Foresthill Road	55	0	44	21
Todd Valley Road (West)					
14	South of Foresthill Road	58	0	75	35
Todd Valley Road (East)					
15	South of Foresthill Road	51	+1	25	11
Mosquito Ridge Road					
16	South of Foresthill Road	55	0	43	20
Yankee Jim's Road					
17	North of Race Track Street	56	+1.5	57	26
Main Street					
18	South of Foresthill Road	53	0	32	15
Michigan Bluff Road					
19	South of Foresthill Road	49	0	19	9

Segment	Description	Ldn @ 100'	Increase in Noise Levels, dB	Distance to Traffic Noise Contours (ft.)	
				60 dB	65 dB
Race Track Street					
20	North of Foresthill Road	55	+1	49	23
Todd Valley Connection					
21	Todd Valley to Foresthill	52	-1	27	13
Spring Garden Connection					
22	East of Spring Garden Road	43	-2	7	3
23	North of Foresthill Road	58	+2	72	33

Golf Course

Noise generated within the project site by the golf course is expected to be primarily associated with the maintenance facility and the operation of maintenance equipment on the course. Although the noise generation of various maintenance equipment will vary, adverse public reaction to early morning operations may be expected at the residences located in nearest proximity to these noise sources.

Recreational Vehicle Park

Noise generated by the 100-space recreational vehicle park will be primarily associated with the arrival and departure of vehicles and the use of generators in the absence of electrical outlets. In order to reduce adverse public reaction to nighttime generator noise, it is recommended that no generators should operate between the hours of 9:00 p.m. and 7:00 a.m.

Wastewater Treatment Plant

Noise sources associated with wastewater treatment plants generally include pump motors, backup diesel generators and filtration systems. Generally, pumps and the associated motors are located inside of buildings or are submerged, and are relatively quiet. Noise level data provided for electric pump motors indicate that the linear sound power level associated with a 50 horsepower (hp) is approximately 84dB, and approximately 85 dB for a 100 hp motor. Filtration systems include small motors and mechanical apparatus. Backup diesel-powered generators are needed in the event of power failures, and are used for pumping effluent to higher elevations. In addition, diesel generators are routinely exercised on a monthly basis during daytime hours. Noise level data collected at a lift station in Folsom for a Kohler Model 180ROZ J-R standby emergency diesel powered generator is 70 dBA at a distance of 75 feet.

Construction Noise Levels

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate project vicinity. Activities involved in construction would generate maximum noise levels, as indicated in Table 3.7-10, ranging from 85 to 90 dB at a

distance of 50 feet. Construction activities would be temporary in nature and normally occur during normal daytime working hours.

Table 3.7-10
Construction Equipment Noise

Type of Equipment	Maximum Level, dB at 50 feet
Bulldozers	87
Heavy Trucks	88
Backhoe	85
Pneumatic Tools	85

Source: *Environmental Noise Pollution*, Patrick R. Cunniff, 1977.

Noise would also be generated during the construction phase by increased construction-related traffic on local roadways. The intensity of this traffic will depend on how many uses are under construction at any given time. A potentially significant project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be of short duration, and would likely occur primarily during daytime hours.

Generalized Noise Mitigation Measures

Any noise problem may be considered as being composed of three basic elements: the noise source, a transmission path, and a receiver. The appropriate acoustical treatment for a given project should consider the nature of the noise source and the sensitivity of the receiver. The problem should be defined in terms of appropriate criteria (Ldn, Leq, or Lmax), the location of the sensitive receiver (inside or outside), and when the problem occurs (daytime or nighttime). Noise control techniques should then be selected to provide an acceptable noise environment for the receiving property while remaining consistent with local aesthetic standards and practical structural and economic limits. Fundamental noise control options include the following:

Use of Setbacks

Noise exposure may be reduced by increasing the distance between the noise source and receiving use. Setback areas can take the form of open space, frontage roads, recreational areas, storage yards, etc. The available noise attenuation from this technique is limited by the characteristics of the noise source, but is generally about 4 to 6 dB per doubling of distance from the source.

Use of Barriers

Shielding by barriers can be obtained by placing walls, berms or other structures, such as buildings, between the noise source and the receiver. The effectiveness of a barrier depends upon blocking line-of-sight between the source and receiver, and is improved with increasing the

distance the sound must travel to pass over the barrier as compared to a straight line from source to receiver. The difference between the distance over a barrier and a straight line between source and receiver is called the "path length difference," and is the basis for calculating barrier noise reduction.

Barrier effectiveness depends upon the relative heights of the source, barrier and receiver. In general, barriers are most effective when placed close to either the receiver or the source. An intermediate barrier location yields a smaller path-length-difference for a given increase in barrier height than does a location closer to either source or receiver.

For maximum effectiveness, barriers must be continuous and relatively airtight along their length and height. To ensure that sound transmission through the barrier is insignificant, barrier mass should be about 4 lbs./square foot, although a lesser mass may be acceptable if the barrier material provides sufficient transmission loss. Satisfaction of the above criteria requires substantial and well-fitted barrier materials, placed to intercept line of sight to all significant noise sources. Earth, in the form of berms or the face of a depressed area, is also an effective barrier material.

Transparent noise barriers may be employed, and have the advantage of being aesthetically pleasing in some environments. Transparent barrier materials such as laminated glass and polycarbonate provide adequate transmission loss for most highway noise control applications. Transparent barrier materials may be flammable, and may be easily abraded. Some materials may lose transparency upon extended exposure to sunlight. Maintaining aesthetic values requires that transparent barriers be washed on a regular basis. These properties of transparent barrier materials require that the feasibility of their use be considered on a case-by-case basis.

The attenuation provided by a barrier depends upon the frequency content of the source. Generally, higher frequencies are attenuated (reduced) more readily than lower frequencies. This results because a given barrier height is relatively large compared to the shorter wavelengths of high frequency sounds, while relatively small compared to the longer wavelengths of the low frequency sounds. The effective center frequency for traffic noise is usually considered to be 550 Hz. Railroad engines, cars and horns emit noise with differing frequency content, so the effectiveness of a barrier will vary for each of these sources. Frequency analyses are necessary to properly calculate barrier effectiveness for noise from sources other than highway traffic.

There are practical limits to the noise reduction provided by barriers. For highway traffic noise, a 5 to 10 dB noise reduction may often be reasonably attained. A 15 dB noise reduction is sometimes possible, but a 20 dB noise reduction is extremely difficult to achieve. Barriers usually are provided in the form of walls, berms, or berm/wall combinations. The use of an earth berm in lieu of a solid wall may provide up to 3 dB additional attenuation over that attained by a solid wall alone, due to the absorption provided by the earth. Berm/wall combinations offer slightly better acoustical performance than solid walls, and are often preferred for aesthetic reasons.

Site Design

Buildings can be placed on a project site to shield other structures or areas, to remove them from noise-impacted areas, and to prevent an increase in noise level caused by reflections. The use of one building to shield another can significantly reduce overall project noise control costs, particularly if the shielding structure is insensitive to noise. As an example, carports or garages can be used to form or complement a barrier shielding adjacent dwellings or an outdoor activity area. Similarly, one residential unit can be placed to shield another so that noise reduction measures are needed for only the building closest to the noise source. Placement of outdoor activity areas within the shielded portion of a building complex, such as a central courtyard, can be an effective method of providing a quiet retreat in an otherwise noisy environment. Patios or balconies should be placed on the side of a building opposite the noise source, and "wing walls" can be added to buildings or patios to help shield sensitive uses.

Building Design

When structures have been located to provide maximum noise reduction by barriers or site design, noise reduction measures may still be required to achieve an acceptable interior noise environment. The cost of such measures may be reduced by placement of interior dwelling unit features. For example, bedrooms, living rooms, family rooms and other noise-sensitive portions of a dwelling can be located on the side of the unit farthest from the noise source.

Bathrooms, closets, stairwells and food preparation areas are relatively insensitive to exterior noise sources, and can be placed on the noisy side of a unit. When such techniques are employed, noise reduction requirements for the building facade can be significantly reduced, although the architect must take care to isolate the noise impacted areas by the use of partitions or doors.

In some cases, external building facades can influence reflected noise levels affecting adjacent buildings. This is primarily a problem where high-rise buildings are proposed, and the effect is most evident in urban areas, where an "urban canyon" may be created. Bell-shaped or irregular building facades and attention to the orientation of the building can reduce this effect.

Noise Reduction by Building Facades

When interior noise levels are of concern in a noisy environment, noise reduction may be obtained through acoustical design of building facades. Standard residential construction practices provide 10-15 dB noise reduction for building facades with open windows, and approximately 20 dB to 25 dB noise reduction when windows are closed. Thus a 20 dB exterior-to-interior noise reduction can be obtained by the requirement that building design include adequate ventilation systems, allowing windows on a noise-impacted facade to remain closed under any weather condition.

Where greater noise reduction is required, acoustical treatment of the building facade is necessary. Reduction of relative window area is the most effective control technique, followed by providing acoustical glazing (thicker glass or increased air space between panes) in low air infiltration rate frames, use of fixed (non-movable) acoustical glazing or the elimination of windows. Noise transmitted through walls can be reduced by increasing wall mass (using stucco

or brick in lieu of wood siding), isolating wall members by the use of double- or staggered- stud walls, or mounting interior walls on resilient channels. Noise control for exterior doorways is provided by reducing door area, using solid-core doors, and by acoustically sealing door perimeters with suitable gaskets. Roof treatments may include the use of plywood sheathing under roofing materials.

Whichever noise control techniques are employed, it is essential that attention be given to installation of weatherstripping and caulking of joints. Openings for attic or sub-floor ventilation may also require acoustical treatment; tight-fitting fireplace dampers and glass doors may be needed in aircraft noise-impacted areas.

Design of acoustical treatment for building facades should be based upon analysis of the level and frequency content of the noise source. The transmission loss of each building component should be defined, and the composite noise reduction for the complete facade calculated, accounting for absorption in the receiving room. A one-third octave band analysis is a definitive method of calculating the A-weighted noise reduction of a facade.

Use of Vegetation

Trees and other vegetation are often thought to provide significant noise attenuation. However, approximately 100 feet of dense foliage (so that no visual path extends through the foliage) is required to achieve a 5 dB attenuation of traffic noise. Thus the use of vegetation as a noise barrier should not be considered a practical method of noise control unless large tracts of dense foliage are part of the existing landscape.

Vegetation can be used to acoustically "soften" intervening ground between a noise source and receiver, increasing ground absorption of sound and thus increasing the attenuation of sound with distance. Planting of trees and shrubs is also of aesthetic and psychological value, and may reduce adverse public reaction to a noise source by removing the source from view, even though noise levels will be largely unaffected. It should be noted, however, that trees planted on the top of a noise control berm can actually slightly degrade the acoustical performance of the barrier. This effect can occur when high frequency sounds are diffracted (bent) by foliage and directed downward over a barrier.

In summary, the effects of vegetation upon noise transmission are minor, and are primarily limited to increased absorption of high frequency sounds and to reducing adverse public reaction to the noise by providing aesthetic benefits.

Impacts and Mitigation Measures

Impact 3.7.1 Development within the project area will generate increased traffic noise on the local roadway system.

This project-generated traffic is expected to result in traffic noise level increases over existing levels which are considered to be significant along portions of Foresthill Road and Yankee Jim's Road. Since the portion of Yankee Jim's Road which is exposed to a significant increase in traffic noise levels is confined to the project site, the increase in traffic noise levels along Yankee

Jim's Road will not affect any existing residences, and is considered ***less than significant.*** However, existing residences are located adjacent to Foresthill Road, and impacts on these residences will be ***potentially significant.***

In addition, the proposed project includes residential uses adjacent to Foresthill Road and Yankee Jim's Road. The project site could be exposed to traffic noise levels which exceed 60 dB Ldn at the outdoor areas. In addition, the project site could be exposed interior traffic noise levels which exceed an interior noise level standard of 45 dB Ldn. However, since the project design is not available, overall noise levels cannot be determined at this time. Therefore, a detailed analysis of traffic noise levels will need to be conducted for proposed residences adjacent to Foresthill Road and Yankee Jim's Road when site designs have been completed. This impact is considered to be ***significant***.

Mitigation Measure

Implementation of the following measures will reduce traffic noise impacts to a *less than significant level:*

3.7.1a. *The extent by which various land uses will be affected by increases in traffic noise levels associated with the development of the region will vary depending on the proximity of those uses to the roadways in question and the individual sensitivities of those uses to noise.*

Because the increase in traffic noise levels along Foresthill Road would affect existing noise sensitive land uses (primarily residences) which are already located adjacent to Foresthill Road, the only way to practically reduce noise levels at those locations would be to construct noise barriers between the roadway and the residences, or to repave the roadways in question with noise-reducing asphalt. The construction of solid noise barriers could reduce traffic noise levels at the nearest noise sensitive receptors to the roadways. However, barriers may not be feasible, as access to the residences is from the roadway. The use of alternative roadway pavements such as rubberized asphalt or open gap asphalt have been shown to reduce overall traffic noise levels by approximately 3 dB to 5 dB, and repaving of the affected roadway segments or payment of fair share fees towards these road improvements shall be required prior to issuance of the first certificate of occupancy.

3.7.1b. *A detailed analysis of traffic noise levels shall be required for tentative subdivision maps for proposed residences adjacent to Foresthill Road and Yankee Jim's Road. The noise analysis will be required to incorporate mitigation measures which would reduce noise impacts at proposed residences to a less than significant level.*

Impact 3.7.2 Activities associated with construction will result in elevated noise levels within the immediate area.

Activities involved in construction would typically generate maximum noise levels ranging from 85 to 90 dB at a distance of 50 feet. Due the relatively small distance between the existing noise-

sensitive uses and the uses proposed, construction will result in periods of significant ambient noise level increases. Because construction activities could result in periods of elevated noise levels at existing residences, this impact is considered ***potentially significant.***

Mitigation Measure

Implementation of the following measure will reduce construction noise impacts to a *less than significant level*:

3.7.2. *Construction activities shall be restricted to the daytime hours of operation, when possible. All equipment shall be fitted with factory equipped mufflers and in good working order.*

Impact 3.7.3 Activities associated with maintenance of the proposed golf course could result in noise levels which may be annoying at proposed new residences adjacent to the golf course.

Maintenance of fairways and greens on a golf course generally occur throughout the early morning and daytime hours. This type of activity is inherent to golf courses. The noise levels could potentially be annoying to future residents adjacent to the golf course. Therefore, this impact is considered ***potentially significant.***

Mitigation Measure

Implementation of the following measure will reduce golf course operations noise impacts to a *less than significant level*:

3.7.3. *All maintenance equipment shall be kept in good working order and fitted with mufflers. In addition, all future residents which purchase property adjacent to the proposed golf course shall sign a disclosure which fully identifies that noise levels associated with golf course maintenance will occur. The golf course operator shall schedule maintenance of those areas abutting residences in a sensitive manner.*

Impact 3.7.4 Noise generated by the 100-space recreational vehicle park may result in noise levels which exceed acceptable standards at nearby residential uses.

Noise generated by the 100-space recreational vehicle park will be primarily associated with the arrival and departure of vehicles and the use of generators, in the absence of electrical outlets. Therefore, this impact is considered ***potentially significant.***

Mitigation Measure

Implementation of the following measure will reduce noise impacts associated with the recreational vehicle park to a *less than significant level:*

3.7.4. *To reduce adverse public reaction to nighttime generator noise, no generators shall be allowed to operate between the hours of 9:00 p.m. and 7:00 a.m. In addition, if the RV park is located within 500 feet of any existing or proposed residential uses, a detailed analysis of noise impacts shall be conducted when a detailed site plan for the RV park is available, and additional mitigation measures shall be implemented in accordance with the recommendations of the acoustical analysis.*

Impact 3.7.5 Noise generated by the wastewater treatment plant may result in noise levels which exceed acceptable standards at nearby residential uses.

If electric pump motors are located inside of buildings which are designed to control noise, exterior noise levels at a distance of 100 feet are generally less than 40 dBA and would comply with State Office of Noise Control Model Community Noise Control Ordinance recommended 40 dBA hourly Leq, nighttime exterior noise level standard. If these types of pumping facilities are located closer than 100 feet from the nearest residential property line, impacts are ***potentially significant***. Noise impacts from filtration systems and diesel-powered generators can be ***significant*** under certain circumstances.

Mitigation Measure

Implementation of the following measure will reduce noise impacts related to the wastewater treatment facility to a *less than significant level*:

3.7.5. *Wastewater treatment plant pumping equipment which may operate during the nighttime hours shall not exceed an hourly average noise level of 40 dBA Leq at the project property line or at adjacent residential property lines. Routine testing of emergency generator(s) shall be conducted during daytime periods. Emergency generators shall not exceed an hourly average noise level of 50 dBA Leq at the project property line or at adjacent residential property lines.*

3.8 HEALTH AND SAFETY

3.8.1 SETTING

Emergency Response Plans

Placer County maintains an Emergency Management Program to effectively prepare for, respond to, recover from, and mitigate the effects of natural or technological disasters. The County also maintains an Emergency Operations Plan and an emergency operations center to coordinate emergency response, management, and recovery activities. The proposed project is not inconsistent with these programs and activities.

Risk of Upset

Refer to Section 3.3 for a description and diagram of the proposed project wastewater treatment facilities. Section 3.4 addresses water quality associated with the wastewater treatment facilities.

Hazardous Sites

According to the Placer County General Plan Background Report, due to its quantity, concentration, or physical, chemical, or infectious characteristics, hazardous waste may do either of the following: cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; and/or pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed. The General Plan Background Report further states that the County expects to be producing approximately 12,660 tons of hazardous waste per year by 2000.

Hazardous waste includes products commonly used in residences and local businesses. Hazardous waste includes, but is not limited to pesticides, herbicides, paints, lacquers, varnishes, motor oil and fluids, household cleaning supplies, photographic chemicals, and certain building materials.

The General Plan Background Report and the Foresthill Divide Community Plan Background Report identify contaminated sites in the Foresthill vicinity. In some sites, hazardous wastes have been improperly disposed of or surface impoundments have possibly contaminated groundwater supplies.

No Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) sites are listed within Foresthill. No Leaking Underground Storage Tank (LUST) sites are located on the project site. The Foresthill Beacon station on Foresthill Road, within ¼ mile of the project site, is listed in the Leaking Underground Storage Tank Information System (LUSTIS) database. The database indicates that this case consists of gasoline leaking into soil. Other sources of contamination in the project vicinity include old mining sites, which contribute to heavy metals in area streams.

Fire Hazards

The urban-wildland interface occurs where development abuts wildlands, and is particularly susceptible to wildfires. Risk of hazard is increased with steep slopes, windy areas, and a hot, dry climate. According to the Placer County General Plan Background Report:

> Fire hazards are identified by evaluating the type and amount of fuels, the topography, and climate. Hazards are greatest in areas with a ladder of rapidly ignitable fuels, such as grasses, that are adjacent to hotter and longer-burning fuels such as shrubs and trees. Steep slopes allow fires to preheat vegetation before climbing hillsides, which increases the rate of fire spread. Most fires start

between May and October because the hot and dry weather conditions reduce plant moisture and make vegetation more susceptible to burning.

According to the Foresthill Divide Community Plan Background Report:

> Wildland fires present a serious risk to residents and structures on the Foresthill Divide. The CDF Fire Hazard Severity Classification System was used to map the extreme, high, and moderate fire hazard areas on the Divide. Extreme hazard ratings are located in the steep sloping areas along the North and Middle Forks of the American River. High hazard areas generally exist surrounding the Todd's Valley Subdivision and in the Yankee Jim's area. Moderate rating occurs in the existing townsite of Foresthill and extending north along Foresthill Road to Baker Ranch on the level areas as well as in the Todd's Valley Subdivision.
>
> CDF works with landowners to provide defensible space around structures, and is currently managing a program of mechanical brush removal and tree thinning in the Foresthill area, especially along roads. The purpose of the brush removal and tree thinning program is to reduce the extensive fuel loading which has occurred over the past century due to fire suppression activities. Additionally, CDF, in conjunction with Placer County, offers a service allowing residents to leave piles of cleared brush at the curb for CDF to reduce with a wood chipper.
>
> The USFS Forest Plan Amendment includes fire and fuels management strategies, the goal of which is to alter fire regimes through a program of strategic fire hazard reduction treatments that reduce the potential for severe wildfire effects. Fire suppression capabilities would be enhanced by modifying fire behavior inside the urban wildland intermix zone. In order to influence uncharacteristically severe wildfires, many areas would receive fuel hazard reduction treatments. Treatment areas would be arranged to interrupt fire spread. Fuel reduction treatments are conducted in the urban wildland intermix zone using mechanical treatments, including timber harvest, and under certain conditions, prescribed fire. Presumably, portions of the Plan area that are adjacent to the Tahoe National Forest would benefit from the fuel reduction activities contemplated in the Forest Plan Amendment.

The Fire Hazard Severity Zones assigned to the project site are shown in Figure 3.8-1. As shown in the figure, almost the entire project site is currently classified as "very high" hazard.

Seismic and Geologic Hazards

The project site is located on the Foresthill Divide, a long northeast-trending ridge system separating the North and Middle Forks of the American River. The geologic units in the Foresthill Divide consist predominantly of metamorphic rocks common to the Sierra Nevada foothills. Metamorphic rocks in the area originally were deposited as volcanic lava flows, volcanic ash falls (tuffs), and sedimentary rocks. They were compressed, hardened, and tilted on edge due to great forces in the earth acting over long periods of time to create the present metavolcanic and metasedimentary rock units.

The rocks underlying the Divide are part of the Mother Lode Belt and include slates and shales of the Mariposa Formation. The flat ridge of the Foresthill Divide is formed by a complex system of Tertiary channels capped by lavas that are included within the Mehrten Formations, including undifferentiated Tertiary andesitic mudflows, volcanic breccias, pyroclastic deposits, lava flows, and sedimentary fluvial deposits composed almost entirely of andesitic material. Metavolcanic rock of the Calaveras complex occurs under thin soils on steep canyon slopes, and includes serpentine. These units are dark green, hard, mostly massive, and some are highly schistose. The rock is iron-rich and produces thin, dark red, iron rich soils.

Metasedimentary rocks of the Calaveras complex are dark gray and highly fissile, and contain lenticular masses of greenstone, limestone, chert, and greywacke. Mostly the rocks are soft, intensely jointed metashales and metasandstones with scattered hard ribs of black slate. Soil thickness and nature varies with the underlying parent rock. The units are susceptible to raveling and shallow slips along fracture planes in open cuts. This complex is located on steep canyon slopes on the Foresthill Divide, on either side of the ridge from the Foresthill townsite.

The underlying ancient Tertiary river channels contain auriferous deposits that were the focus of hydraulic and drift mining for gold by incoming Euroamericans. The first gold prospecting along the Foresthill Divide was confined to the shallow placers along gravel bars and the beds of running streams where younger Quaternary stream deposits eroded the gold-bearing gravels laid down in earlier times. These shallow deposits were initially mined by a variety of simple surface hand mining techniques that involved the basic principle of agitating gold-bearing gravel in water-filled containers.

Older Tertiary Gravels, such as those formed by the ancestral American River that drains the Foresthill Divide, were laid down by larger and slower Sierra Nevada rivers with gradual slopes. These huge deposits of ancient, loosely cemented gold-bearing gravels are more deeply buried and required more sophisticated techniques in their extraction. One method, ground sluicing, employed gravity flows of water aided by pick and shovel to break up deposits. Hydraulicking was a more powerful form of ground sluicing, using water under pressure to dislodge and direct gold-bearing deposits into sluices where gold was trapped. “Coyoting” and later, more elaborate drift mining techniques, both employed horizontal or vertical excavations sunk into the ground to reach the gold bearing gravels.

The majority of mining on the Foresthill Divide was accomplished by drift mining, using an adit and/or a shaft to reach the gold-rich ancient river channel lying deep under the ridge. Gold was “accidentally” discovered within the deep river gravels below Foresthill after a landslide exposed nuggets of gold in the debris. By 1857, there were 25 drift operations in the area, most tunnels entering into the travel deposits from the east side of the Divide.

Historically, chromium was mined for steel alloy for use during wartime. However, mining of chromium, iron, and nickel are no longer financially feasible. Mining is highly restricted and regulated by State and federal law, and requires permits from County, State, regional and federal agencies. Operations involving the diversion of water are regulated and monitored by the Department of Fish and Game and the Regional Water Quality Control Board.

U.S. Forest Service registered professional foresters (RPFs) have recorded a total of 27 historic resources within the project site, including 10 mine ditches, five mine shafts, six mine tunnels, two mind ponds, and one mine "glory hole." Archaeological site location maps contained within these Timber Harvesting Plan (THP) reports also show a number of roads and landforms (presumably due to mining).

The Forest Ranch site is known to have the remnants of the Mayflower mine. As a result of abandoned mines, there are known and unknown mine shafts, pits and tunnels that could become hazards to the public. Weak ground can be present over and adjacent to the portal of an inclined shaft. As groundwater infiltrates into the subsurface, it can cause piping of soils and weather bedrock to the extent that it causes failure. If surface structures such as roads or buildings are unknowingly built over these areas, and as underlying earth material weather and weaken, their loss of support can cause differential settlements and failure. Most abandoned vertical shafts penetrate the earth down to and through the local water table, thus most of these shafts may be open to free standing water conditions that are as deep as the shaft is to its bottom. These features represent a direct safety hazard to humans. Additionally, these structures could act as conduits for pollutants into the subsurface and groundwater, thus potentially contaminating subsurface environments.

Seismicity refers to an area's propensity for earthquakes. Seismicity can be evaluated based on the occurrence of faults, both active and inactive. According to the 1977 Placer County Seismic and Safety Element, "the fault history of Placer County began about 140 million years ago with the folding, crushing, and faulting of marine sedimentary and volcanic deposits." Placer County is not known to possess active faults.

The Foresthill Divide area is within the Melones fault zone; however, it is noted in the 1977 County Seismic and Safety Element that the central county area, which includes the project site, is the most stable area, formed on ancient granitic and metamorphic rock that contains no historically active faults. Western Placer County is more susceptible to seismic events, and eastern Placer County is historically earthquake-prone because the main frontal fault of the Sierra Nevada occurs about 6 miles east of Lake Tahoe. The Foresthill Divide area has the potential to be affected by shock waves that would result from earthquakes in these areas.

As defined by the California Division of Mines and Geology, a landslide is the downslope movement of soil and rock material under the influence of gravity. The formation of landslides under natural conditions depends on several factors, including the type of materials, structural properties of the materials, steepness of slopes, water and rainfall, vegetation type, proximity to areas undergoing active erosion, and earthquake-generated ground shaking. The canyon sides of the American River watershed are prone to sliding or slumping due to slopes in excess of 30 percent.

Placer County General Plan Policies

Public Facilities and Services

4.I.9. The County shall ensure that all proposed developments are reviewed for compliance with fire safety standards by responsible local fire agencies per the Uniform Fire Code and other County and local ordinances.

Seismic and Geological Hazards

8.A.1. The County shall require the preparation of a soils engineering and geologic-seismic analysis prior to permitting development in areas prone to geological or seismic hazards (i.e., groundshaking, landslides, liquefaction, critically expansive soils, avalanche).

8.A.2. The County shall require submission of a preliminary soils report, prepared by a registered civil engineer and based upon adequate test borings, for every major subdivision and for each individual lot where critically expansive soils have been identified or are expected to exist.

8.A.3. The County shall prohibit the placement of habitable structures or individual sewage disposal systems on or in critically expansive soils unless suitable mitigation measures are incorporated to prevent the potential risks of these conditions.

8.A.4. The County shall ensure that areas of slope instability are adequately investigated and that any development in these areas incorporates appropriate design provisions to prevent landsliding.

8.A.5. In landslide hazard areas, the County shall prohibit avoidable alteration of land in a manner that could increase the hazard, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes.

8.A.6. The County shall require the preparation of drainage plans for development in hillside areas that direct runoff and drainage away from unstable slopes.

8.A.9. The County shall require that the location and/or design of any new buildings, facilities, or other development in areas subject to earthquake activity minimize exposure to danger from fault rupture or creep.

8.A.10. The County shall require that new structure permitted in areas of high liquefaction potential be sited, designed, and constructed to minimize the dangers from damage due to earthquake-induced liquefaction.

8.A.11. The County shall limit development in areas of steep or unstable slopes to minimize hazards caused by landslides or liquefaction.

Fire Hazards

8.C.1. The County shall ensure that development in high-fire-hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable state and county fire standards.

8.C.2. The County shall require that discretionary permits for new development in fire hazard areas be conditioned to include requirements for fire-resistant vegetation, cleared fire breaks, or a long-term comprehensive fuel management program. Fire hazard reduction measures shall be incorporated into the design of development projects in fire hazard areas.

8.C.3. The County shall require that new development meets state, county, and local fire district standards for fire protection.

8.C.4. The County shall refer development proposals in the unincorporated county to the appropriate local fire agencies for review for compliance with fire safety standards. If dual responsibility exists, then both agencies shall review and comment relative to their area of responsibility. If standards are different or conflicting, the more stringent standards shall be applied.

Hazardous Materials

8.G.2. The County shall discourage the development of residences or schools near known hazardous waste disposal or handling facilities.

Foresthill General Plan Goals and Policies

Seismic Safety

Goal: To protect the lives and property of the citizens of the Foresthill area from unacceptable risk resulting from seismic and geologic hazards.

1. Review future developments using all available seismic data and taking into account recommendations from the Seismic Safety Element.

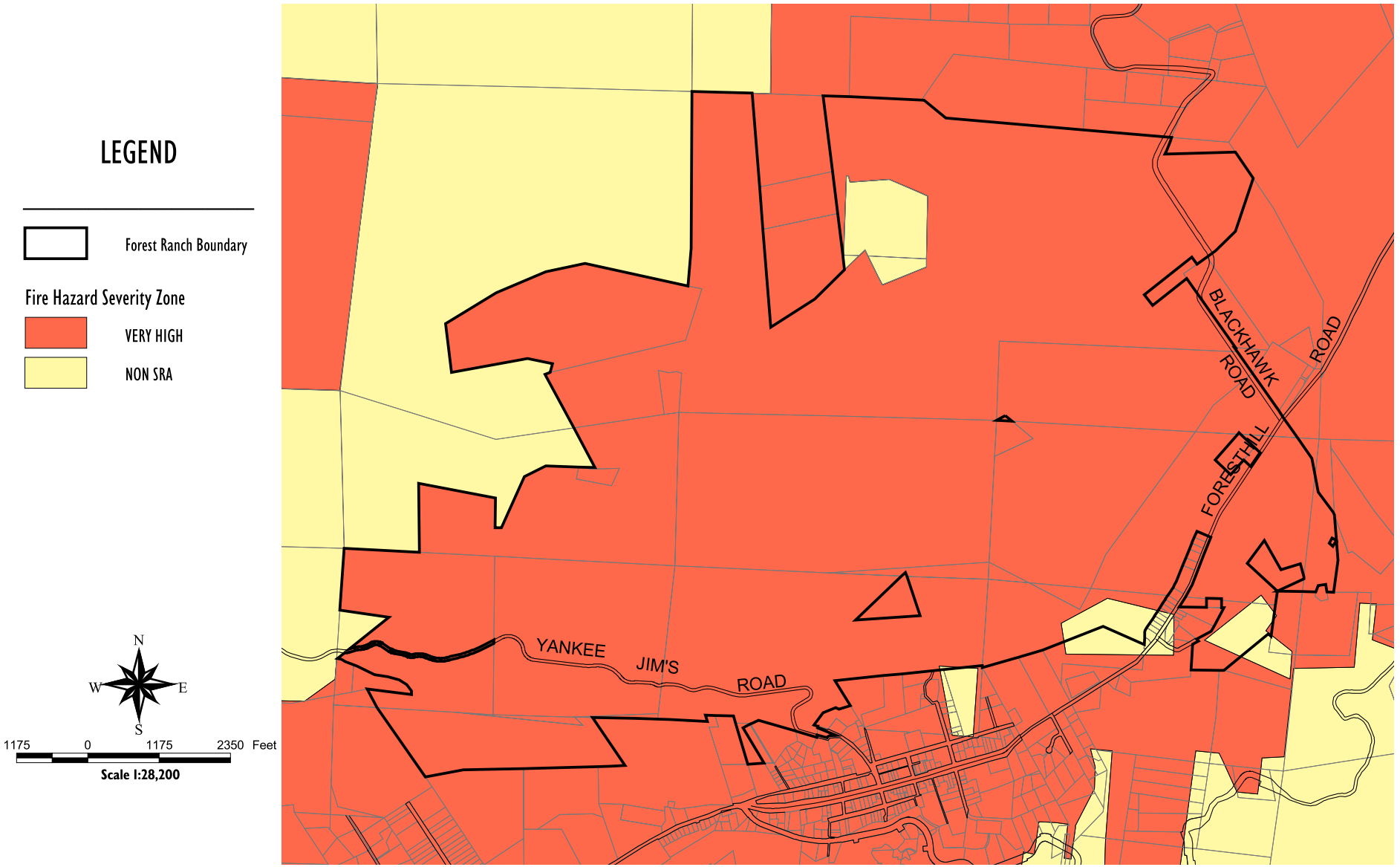
2. Maintain strict enforcement of seismic safety standards for new construction contained in the Uniform Building Code.

Safety

Goal 1: Protect the citizens and visitors of the Foresthill area from loss of life while protecting property and watershed resources from unwanted fires through pre-planning, education, fire defense improvements, and fire suppression.

1. Ensure that all proposed developments are reviewed for fire safety standards by local fire agencies responsible for its protection, including providing adequate water supplies and ingress and egress.

2. Maintain strict enforcement of the Uniform Building Code and the Uniform Fire Code.



Source: California Department of Forestry, Fire and Resource Assessment Program (FRAP), 2002 / Quad Knopf Inc., 2002

Quad Knopf

FOREST RANCH EIR

Fire Hazard Severity Zones

Figure 3.8-1

Foresthill Divide Community Plan Policies

Community Development Element

3.D.13-9 The County shall ensure that all proposed developments are reviewed for compliance with fire safety standards by responsible local fire agencies per the Uniform Fire Code and other County and local ordinances.

3.D.13-11 The County shall encourage the modification of vegetation around structures and developments to reduce radiant heat along fire escape routes providing for the safety of residents and fire fighting personnel. Fuel modification will reduce the intensity of a wildfire by reducing the volume and density of flammable vegetation. These areas shall provide (1) increased safety for emergency fire equipment and evacuating civilians; (2) a point of attack or defense from a wildfire; and (3) strategic siting of fuel breaks, fire breaks, and greenbelts.

3.D.13-12 The County shall require that discretionary permits for new development in fire hazard areas be conditioned to include requirements for a fire safe community, defensible space fire-resistant vegetation, cleared fire breaks and fuel breaks, or a long-term comprehensive fuel management program. Fire hazard reduction measures shall be incorporated into the design of development projects in fire hazard areas of Foresthill.

3.D.13-13 The County shall require that new development meet State, County, and local fire district standards for fire protection.

Resource Management Element

4.A.9-1 The County shall require the preparation of a soils engineering and geologic-seismic analysis prior to permitting development in areas prone to geological or seismic hazards (i.e., ground shaking, landslides, liquefaction, critically expansive soils, avalanche).

4.A.9-2 The County shall require submission of a preliminary soils report, prepared by a registered civil engineer and based upon adequate test borings, for every major subdivision and for each individual lot where critically expansive soils have been identified or are expected to exist.

4.A.9-3 The County shall prohibit the placement of habitable structures or individual sewage disposal systems on or in critically expansive soils unless suitable mitigation measures are incorporated to prevent the potential risks of these conditions.

4.A.9-4 The County shall ensure that areas of slope instability are adequately investigated and that any development in these areas incorporates appropriate design provisions to prevent landsliding.

4.A.9-5 In landslide hazard areas, the County shall prohibit avoidable alteration of land in a manner that could increase the hazard, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes.

4.A.9-7 In areas subject to severe groundshaking, the County shall require that new structures intended for human occupancy be designed and constructed to minimize risk to the safety of occupants.

4.A.9-8 The County shall continue to support scientific geologic investigations which refine, enlarge and improve the body of knowledge on active fault zones, unstable areas, severe groundshaking, avalanche potential and other hazardous conditions in Placer County.

4.A.9-9 The County shall require that the location and/or design of any new buildings, facilities or other development in areas subject to earthquake activity minimize exposure to danger from fault rupture or creep.

4.A.9-10 The County shall require that new structures permitted in areas of high liquefaction potential be sited, designed and constructed to minimize the dangers from damage due to earthquake-induced liquefaction.

4.A.9-11 The County shall limit development in areas of steep (in excess of 30%) or unstable slopes, or slope breaks to minimize hazards caused by landslides, liquefaction, construction undercutting or vegetation loss.

3.8.2 IMPACTS AND MITIGATION MEASURES

Impact Evaluation Criteria

Based on Appendix G of the State CEQA Guidelines, the project would normally be considered to have an adverse impact on public health and safety if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment;

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;

- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Based on Appendix G of the State CEQA Guidelines, the proposed project would normally be considered to have a significant impact on geology and soils if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

  i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42);

  ii) Strong seismic ground shaking;

  iii) Seismic-related ground failure, including liquefaction;

  iv) Landslides.

- Result in substantial soil erosion or the loss of topsoil;

- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;

- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;

- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

Development which is inconsistent with relevant Placer County General Plan and Foresthill General Plan policies and the Placer County Zoning Ordinance should be considered potentially significant. Because the Foresthill Divide Community Plan is not yet adopted, but has been developed by the Foresthill Community Plan Team and is currently under review for possible adoption, development which is inconsistent with relevant proposed policies may be considered

potentially significant, although it is recognized that policies may not be adopted in their current form. Relevant General Plan and Community Plan health and safety policies include the following:

Impact 3.8.1 Risk of upset associated with operation of the wastewater treatment facility.

Operation of a wastewater treatment facility can occasionally result in upset in the treatment process, resulting in potentially toxic air emissions, discharge of odors, and/or water quality impacts due to violation of Waste Discharge Requirements. Such impacts, while rare, are ***potentially significant.***

Mitigation Measure

Implementation of the following measure will reduce impacts associated with upset of the wastewater treatment process to a *less than significant level:*

3.8.1a. *The wastewater treatment plant shall be designed to incorporate redundancy of treatment systems.*

3.8.1b. *Chlorine gas shall not be used for disinfection. Alternative processes such as use of sodium hypochlorite or ultraviolet radiation shall be used.*

3.8.1c. *Emergency storage pond(s) shall be incorporated in the wastewater treatment plant design to allow for emergency storage of untreated effluent.*

3.8.1d. *A diesel standby generator shall be provided for use in the event of a power failure.*

Impacts and mitigation measures associated with odors are addressed in Impact 3.4.4-4.

Impacts 3.8.2 Potential to encounter contaminated site(s) on the project site.

Although a database search does not reveal recorded contamination on the project site, contamination may exist that has not been discovered. Previous logging and mining operations are potential sources of contamination. Should contamination be encountered, it would represent a ***significant impact.***

Mitigation Measure

Implementation of the following measure will reduce impacts associated with contaminated sites to a *less than significant level:*

3.8.2. *A Phase I Environmental Site Assessment shall be conducted for the project site and submitted prior to approval of the first tentative subdivision map, conditional use permit or minor use permit. If recommended by the Phase I, a Phase II Environmental Site Assessment shall be prepared. Should any contamination be discovered, remediation shall be undertaken and completed in accordance with federal, State, and local regulations prior to any development of the project site.*

Impact 3.8.3 Increased exposure of people and property to wildfire hazards on the project site due to the proposed Forest Ranch project.

As described in the Setting discussion, almost the entire project site is classified as "very high" hazard as shown on Figure 3.8-1, Fire Hazard Severity Zones. Development of the project site would reduce fire hazards on the site due to installation of a water system (including fire hydrants and water storage tank(s)), introduction of irrigated landscaping, road construction, and clearing of some trees and underbrush. However, it would also expose large numbers of people to hazards associated with wildfire which may originate on the project site or surrounding properties. Hazards associated with wildfire are ***potentially significant.***

Mitigation Measure

Implementation of the following measure will reduce impacts associated with wildfire to a *less than significant level:*

3.8.3a. *Vegetation shall be modified around new structures to reduce radiant heat along fire escape routes.*

3.8.3b. *The project applicants shall submit a fire safety plan that provides for (1) increased safety for emergency fire equipment and evacuating residents and visitors; (2) a point of attack or defense from a wildfire; and (3) strategic siting of fuel breaks, fire breaks, and greenbelts.*

3.8.3c. *Conditions of approval for tentative subdivision maps, conditional use permits and minor use permits shall include requirements for a fire safe community, defensible space fire-resistant vegetation, cleared fire breaks and fuel breaks, and a long-term comprehensive fuel management program.*

3.8.3d. *Fuel breaks shall be provided along the perimeter of the project site, and fire access roads shall be provided within the project site, at locations subject to the approval of the Foresthill Fire Protection District.*

3.8.3e. *A County Service Area, Zone of Benefit under CSA #28, community services district, expansion of powers of the Foresthill P.U.D., assessment district, or other entity for sustainable fuel break and fire access road maintenance shall be formed or completed prior to recordation of the first final subdivision map. A fuel break maintenance tax or assessment with a provision for increases indexed to the Consumer Price Index shall be approved by the landowners (voters) of the project site, to be developed prior to recordation of the first final subdivision map.*

Impact 3.8.4 Increased exposure of people and property to geologic hazards on the project site due to the proposed Forest Ranch project.

Development of the proposed Forest Ranch project will allow construction of new structures and will result in an estimated 4,255 additional persons living on the project site, and additional people and visitors occupying the offices and recreational facilities. These people and structures will be subject to geologic hazards identified in the Setting section above. However, it is noted in the 1977 County Seismic and Safety Element that the central County area, which includes the Foresthill community, is the most stable area, formed on ancient granitic and metamorphic rock that contains no historically active faults. The area does have the potential to be affected by shock waves resulting from earthquakes in western and eastern Placer County, as well as more distant areas that display greater seismic activity. The canyon sides of the American River watershed are prone to sliding or slumping due to slopes in excess of 30 percent. Impacts related to groundshaking and other geologic hazards on the site are ***potentially significant.***

Mitigation Measure

Compliance with the requirements and regulations of the Uniform Building Code will reduce impacts related to seismic safety and other geologic hazards. In addition, implementation of the following measures will reduce impacts of geologic hazards to a *less than significant level:*

3.8.4a. *A preliminary geotechnical engineering investigation prepared by a licensed civil engineer and consistent with the requirements of the Placer County Grading, Erosion, and Sediment Control Ordinance shall be submitted with the Specific Plan. A more detailed geotechnical engineering investigation prepared by a licensed civil engineer and consistent with the requirements of the Placer County Grading, Erosion and Sediment Control Ordinance shall be submitted with each Tentative Subdivision Map application within the project area. Other entitlement requests may be required to prepare project specific geotechnical investigations if findings in the Specific Plan preliminary engineering investigation indicates a need.*

3.8.4b. *If landslide hazard areas are identified on the project site, they shall be avoided. Alteration of land in a manner that could increase the hazard shall be prohibited, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes.*

3.8.4c. *Drainage plans for the project site shall direct runoff and drainage away from unstable slopes.*

3.8.4d. *The location and/or design of new buildings, facilities, and other development in areas subject to earthquake activity shall minimize exposure to danger from fault rupture or creep.*

3.8.4e. *Any new structure proposed to be located in an area of high liquefaction potential shall be sited, designed, and constructed to minimize the dangers from damage due to earthquake-induced liquefaction.*

3.8.4f. *Development in areas of steep or unstable slopes shall be limited to minimize hazards caused by landslides or liquefaction.*

3.8.4g. *Erosion and ground instability mitigation measures shall include conformance to the Uniform Building Code and Placer County's Grading, Erosion and Sediment Control Ordinance. The required designs shall include methods to control soil erosion and ground instability. Measures to control soil erosion and mitigate potential differential settlement and construction related ground instability impacts include, but are not limited to:*

1. Prohibit the placement of habitable structures or individual sewage disposal systems on or in critically expansive soils.

2. In landslide hazard areas, prohibit avoidable alteration of land in a manner that could increase the hazard, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes.

3. Limit development in areas of steep (in excess of 30%) or unstable slopes, or slope breaks to minimize hazards caused by landslides, liquefaction, construction undercutting or vegetation loss.

4. Septic leachfields and drainage plans shall direct runoff and drainage away from steep and/or unstable slopes.

5. A California licensed Civil Engineer shall prepare and submit to the Department of Public Works a grading plan and erosion control plan (winterization/ground instability plan) for new development projects prior to any environmental review determination.

Impact 3.8.5 Exposure of people to hazards associated with abandoned mines on the project site.

As described in the Project Description and the Setting discussion for this and other sections, the project site contains abandoned mines, including mine shafts and other related features. Grading, construction and occupancy of the project site will expose large numbers of people to potential hazards associated with these abandoned mines. Unknown hazards may remain, even with implementation of recommended mitigation measures. This impact is therefore considered ***potentially significant and unavoidable.***

Mitigation Measure

Implementation of the following measures will reduce impacts associated with abandoned mines, but *not to a less than significant level:*

3.8.5a. *All visible mine entrances, shafts and tunnels shall be secured to prevent entry. Site hazards shall be assessed in accordance with The Department of Toxic Substance Control Handbook, "Abandoned Mine Lands Preliminary Assessment."*

3.8.5b. *All known mine features for each project area shall be mapped or described and disclosed at the time of submittal of each tentative subdivision map, conditional use permit or minor use permit.*

3.8.5c. *The Specific Plan shall include a map identifying past mining activity sites and shall include specific site management strategies to address issues related to abandoned mines including safety and the potential for groundwater contamination.*

CHAPTER FOUR
PROJECT ALTERNATIVES

4.1 DESCRIPTION OF PROJECT ALTERNATIVES

4.1.1 INTRODUCTION

The California Environmental Quality Act and the implementing State CEQA Guidelines require that alternatives to the proposed project be discussed in the EIR. The value of such discussion is to inform public decision-makers of the differential environmental impacts which may be associated with each potential alternative, and to enable a reasoned judgment to be made as to which alternative to the proposed project may be environmentally superior. Section 15126.6 of the State CEQA Guidelines provides the following description of what should be included in the alternatives discussion in an EIR:

> (a) Alternatives to the Proposed Project. An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.
>
> (b) Purpose. Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.
>
> (c) Selection of a range of reasonable alternatives. The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and

briefly explain the reasons underlying the lead agency's determination. Additional information explaining the choice of alternatives may be included in the administrative record. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.

(d) Evaluation of Alternatives. The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.

(e) "No Project" alternative.

(1) The specific alternative of "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline (see Section 15125).

(2) The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

(3) A discussion of the "no project" alternative will usually proceed along one of two lines:

(A) When the project is the revision of an existing land use or regulatory plan, policy or ongoing operation, the "no project" alternative will be the continuation of the plan, policy or operation into the future. Typically this is a situation where other projects initiated under the existing

plan will continue while the new plan is developed. Thus, the projected impacts of the proposed plan or alternative plans would be compared to the impacts that would occur under the existing plan.

(B) If the project is other than a land use or regulatory plan, for example a development project on identifiable property, the "no project" alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this "no project" consequence should be discussed. In certain instances, the no project alternative means "no build" wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment.

(C) After defining the no project alternative using one of these approaches, the lead agency should proceed to analyze the impacts of the no project alternative by projecting what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

(f) Rule of reason. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision-making.

(1) Feasibility. 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, other plans or regulatory limitations, jurisdictional

boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

(2) Alternative locations.

(A) Key question. The key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.

(B) None feasible. If the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR. For example, in some cases there may be no feasible alternative locations for a geothermal plant or mining project which must be in close proximity to natural resources at a given location.

(C) Limited new analysis required. Where a previous document has sufficiently analyzed a range of reasonable alternative locations and environmental impacts for projects with the same basic purpose, the lead agency should review the previous document. The EIR may rely on the previous document to help it assess the feasibility of the potential project alternatives to the extent the circumstances remain substantially the same as they relate to the alternative.

(3) An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.

The sections of the Chapter that follow present a description of the alternatives considered and an analysis of the alternatives in the context of CEQA and the State CEQA Guidelines. The range of alternatives addressed includes an evaluation of the no project alternative (which is required to be addressed), an alternative site, and a reduced project size consistent with the proposed Foresthill Divide Community Plan. Finally, this Chapter presents an analysis of the comparative environmental superiority of the various alternatives, as required by CEQA.

4.1.2 ALTERNATIVES CONSIDERED AND ELIMINATED FROM FURTHER CONSIDERATION

Alternative Project Site

As presented in Section 15126.6(f)(B) of the State CEQA Guidelines above, the key question and first step in the analysis of alternative project locations is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location, and only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.

The Placer County General Plan has been examined for other sites with similar characteristics (i.e., a foothill environment containing at least 2,500 contiguous acres in private ownership) on which effects of the project would potentially be avoided or lessened, and no comparable sites have been found. Sites examined include parcels proposed to be designated by the Foresthill Divide Community Plan for mixed use. Approximately 150 acres within the Foresthill Divide area are to be designated for mixed use under the Community Plan, a substantial portion of which is to be located in the Historic Downtown. The other mixed use areas consist of the Mill Site (57.2 acres) and the Canyon Mixed Use Area (48.7 acres). Due to the existing land use patterns and the limited amount of acreage designated for mixed use, this was not found to be a feasible alternative.

Other sites that were examined include those within the foothills which are shown on the Placer County General Plan for development and are similar in size. Only one site was identified meeting these criteria: Bickford Ranch, which is 1,964 acres in size. However, the Bickford Ranch Specific Plan was recently approved by the County, which commits the Bickford Ranch site to another development plan. Further, the Bickford Ranch site is not owned or under the control of the Forest Ranch project proponents, and it is not reasonable to assume that the proponents can acquire, control or otherwise have access to the Bickford Ranch site. Based on these considerations, it was determined to be infeasible to relocate the proposed development to Bickford Ranch.

Other community plans within the foothills of Placer County were also examined for the presence of similar sites that were planned for mixed use development, but not yet committed to another development plan. This included the Colfax Community Plan, the Meadow Vista Community Plan, the Auburn/Bowman Community Plan, the Weimar/Applegate/Clipper Gap Community Plan, the Newcastle/Ophir Community Plan and the Horsehoe Bar/Penryn Community Plan. No comparable sites were found. Relocation to another community plan area is, therefore, not feasible.

When responding to the NOP, the California Department of Forestry and Fire Protection suggested that an alternative site be evaluated located in the oak woodland portion of Placer County. The intent of this alternative would be to reduce impacts to commercial timber resources. Although Bickford Ranch and several of the community plan areas (Auburn/Bowman Community Plan, Newcastle/Ophir Community Plan and the Horseshoe Bar/Penryn Community Plan) are located in oak woodland, as described above, no comparable sites exist to which the project could be relocated. In addition, although timber resource impacts may be reduced under

this alternative, other impacts related to loss of oak woodland and related habitats and species would be increased.

Based on the above, analysis of alternative sites was eliminated from further consideration.

Non-Age Restricted Community

Consideration was also given to a non-age restricted community as an alternative. However, it was concluded that such an alternative would not comply with CEQA Guidelines Section 15126.6(f). As noted in Section 15126.6(f), alternatives shall be limited to those that would avoid or substantially lessen any of the significant effects of the project. It was determined that a non-age restricted community would actually increase most impacts identified in this EIR because of an increase in population under the non-age restricted scenario. As proposed, 1,700 of the 2,213 housing units are age restricted to those 55 years and older. The removal of the age restriction has the potential to increase the future population by as many as 1,630 persons. In turn, this will increase demands on public services, based on a greater number of persons to be served.

Of greater consequence, however, is the fact that the population would undoubtedly be younger in age, on average, increasing the number of children and number of individuals who will be working. An increase in school age children and young adults will increase a variety of public-service related demands, including schools, parks and public safety, and will generate a greater number of vehicle trips to and from work, schools and shopping. Additional vehicle trips will add to cumulatively significant and unmitigable traffic and air quality impacts, as well as noise impacts. This alternative was therefore eliminated from further consideration.

4.1.3 NO PROJECT ALTERNATIVE

In accordance with Section 15126.6(e)(3)(B) presented above, the No Project alternative consists of an analysis of the circumstance under which the project does not proceed. The No Project alternative consists of two possibilities: first, that the project site will remain in its present condition and use ("No Project/No Build" alternative); and secondly, that the project site will be developed in accordance with the existing Foresthill General Plan land use designations, existing land divisions and available infrastructure ("No Project/Limited Development" alternative).

In the case of the proposed project, because of the existing Foresthill General Plan land use designations and zoning, failure to proceed with the project would not necessarily mean that the project site would remain in its existing condition. The existing General Plan designates the project site for Forestry and Rural Residential. In addition to the forestry, recreational and related uses permitted in the Forestry designation, the Rural Residential designation allows detached single-family dwellings and secondary dwellings; agricultural uses, equestrian facilities, and limited agricultural support businesses; resource extraction uses; various facilities and services that support residential neighborhoods, such as churches, schools, libraries, child care and medical facilities; and parks and necessary public utility and safety facilities.

The California Board of Forestry and the Placer County Board of Supervisors approved a rezoning application in 1993 that changed the zoning from TPZ to Forestry (160-acre minimum lot size) on approximately 2025 acres of the site. The remainder of the site (591± acres) is zoned Residential-Forestry, Combining a Minimum Building Site of 1 acre, Combining a Planned Development designation of 1.0 dwelling units per acre (RF-B-43, PD-1.0) (see Figure 2-5 of Chapter Two).

It has been determined that the above described General Plan and Zoning designations would allow development of a maximum of 591 non-age restricted dwelling units on the project site, although the actual number of dwelling units that could be developed would be determined by the type of wastewater disposal and terrain (slope).

4.1.4 REDUCED PROJECT, FDCP ALTERNATIVE

This alternative assumes development in accordance with the proposed Foresthill Divide Community Plan. Appendix B of the proposed Community Plan contains Development Standards for the Forest Ranch Specific Plan area. The Community Plan and Development Standards require that a specific plan be prepared and would limit the site to a maximum of 533 dwelling units on 1,380 acres. The balance of the 2,615 acre site would be placed in a Forestry, 160 Acre Minimum Parcel Size designation and zoned Timberland Production Zone (TPZ). Residential units and lots would generally be concentrated closer to the core of Foresthill, with densities reduced as development occurs further out.

Significant open space areas would be preserved, with a minimum of 25 percent of the project area designated and protected as natural open space. Trails would be emphasized and natural open space limited to non-motorized access. Open space would be continuous throughout the project area, wherever feasible. Other recreational development may include a golf course, equestrian facilities, mountain bike courses and related facilities. Recreational facilities would be available concurrent with the occupancy of an equivalent number of dwelling units. Setbacks would be used to protect sensitive lands and development would be required to minimize impacts on topography and vegetation. No commercial uses would be permitted, with the exception of a clubhouse in conjunction with a golf course. No recreational vehicle park would be developed. Utilities and public safety services would be provided by existing special districts and the County. Sewer service would be provided in accordance with the determinations of the County Environmental Health Division and might include onsite systems and/or a community treatment system. Architectural and design standards would be applied that emphasize relationship to existing terrain and natural features, views and viewsheds. A homeowners association or similar entity would be formed to ensure compliance with above architectural and design standards.

4.1.5 REDUCED PROJECT, AGE RESTRICTED COMMUNITY ONLY

This Reduced Project Alternative assumes that the entire Forest Ranch development project would be age restricted and would cater only to those 55 years of age or older. The number of residential units would be limited to a maximum of 1,700. These units would be clustered near

the golf course and the existing community core, with the remainder of the site remaining in natural open space. The Development Standards described in Appendix B of the proposed Foresthill Divide Community Plan would be applied to the project, including minimum open space requirements and limitations on commercial uses; however, a variety of housing types would be permitted (including attached and detached units) to encourage clustering, affordability and density closer to the core of the community. The equestrian center and 100 unit recreational vehicle park would be retained, consistent with the recreational and retirement orientation of the community.

4.2 COMPARATIVE ANALYSIS OF PROJECT ALTERNATIVES

4.2.1 NO PROJECT ALTERNATIVE

No Project/No Build Alternative

Under the No Project/No Build Alternative, no additional development would occur on the project site. Existing facilities on the site would remain, including unpaved roads, closed mineshafts, and various utility lines that exist on the project site. It is assumed under this alternative that commercial logging and Christmas tree sales would continue to occur.

The following impacts have been analyzed in comparison to the proposed project:

Land Use

Land use would remain unchanged on the site resulting in no conflicts with the land use designations contained in the 1981 Foresthill General Plan and no conflicts with the land use designations and policies of the Draft Foresthill Divide Community Plan. However, the long-term intent of neither plan would be met, since none of the residential development proposed under the two plans would occur (591 dwelling units under the 1981 Foresthill General Plan and 533 dwelling units under the Draft Foresthill Divide Community Plan) and none of the recreational trails would be constructed. The site would remain available for open space activities and timber (including Christmas tree) production. Because the site is highly productive for timber, it has been estimated that active timber harvesting could occur again in less than 20 years. Continued commercial timber harvesting could result in temporary land use conflicts, and impacts related to traffic, noise, aesthetics and water quality that will be addressed below.

Aesthetics

Although the project site is undeveloped open space, it is not undisturbed and would not remain undisturbed under No Project/No Build Alternative. Several dirt roads traverse the property, as well as three County roads. The property has been logged in the past and most tree cover is second growth. Portions of the property have been reforested, including some trees planted for Christmas tree production. Because the site is highly productive for timber, it has been estimated that active timber harvesting could occur again in less than 20 years resulting in alteration of views of the site from roadways and adjoining properties as a result of tree removal. However,

permanent tree removal on significant portions of the site would not occur, as would be the case with the project, due to construction of the golf course, homes, roads, parking areas and other permanent improvements. Light and glare impacts and impacts on the night sky would not occur under this alternative. Aesthetic impacts under this alternative would generally be temporary and variable in nature as trees are harvested and replaced. Under the proposed project, changes from open space to a more developed environment containing structures, roads, lights and non-endemic landscapes would be apparent and permanent.

Community Development

Under the No Project/No Build Alternative, several impacts related to community development would be avoided. These include impacts related to population increase, growth inducement and creation of a jobs/housing imbalance. No population increase would occur under this scenario. However, the only jobs would be temporary jobs related to future timber harvests and Christmas tree sales. The community, therefore, would be deprived of the full time permanent jobs to be created by the proposed project and temporary construction jobs. No affordable housing would be constructed. Impacts related to public services such as police, fire protection, medical response, provision of parks and recreation facilities, adequate school facilities, stormwater drainage, wastewater treatment and disposal and adequate water supply would not occur because no development would be approved and the site would remain in its present condition.

Natural Resources

Because the site would remain undeveloped, most impacts related to natural resources would not occur. However, future timber harvesting and Christmas tree production would continue to be permitted. Road building and heavy equipment use related to timber production and harvest would cause ground disturbance, although not to the same degree as the project. The potential for lack of mass balance, extensive grading and cut and fill areas would not occur. Forest habitat would be disturbed, but not permanently and not to the same degree as with the project. Timber harvest and growing of Christmas trees may result in the disturbance of habitat for Brandegee's clarkia and could also result in disturbance of valley elderberry longhorn beetle habitat. Habitat for raptors and other migratory and resident birds, Pacific fisher, pine marten and special-status bat species could also be disturbed. Riparian areas, wetlands and oak trees may be disturbed by timber harvest. Although loss of forage lands and habitat due to timber harvest may be cumulative, it would not have the same severity of impact as the project. Water quality impacts related to wastewater discharge would not occur; however, impacts related to erosion and sedimentation may still occur as a result of timber harvest and growing of Christmas trees. There would be no urban runoff generated by this alternative. Permanent structures would not be threatened by flooding and would not impede flood flows. Air quality impacts related to exhaust and fugitive dust emissions caused by timber harvesting would be sporadic, and similar to construction emissions if the project is built. However, with the exception of sporadic emissions caused by timber harvest and Christmas tree sales, mobile source emissions would not occur. Odors caused by wastewater treatment systems or the proposed equestrian center would not occur. Loss of land for timber production also would not occur. Although the potential exists for paleontological resources to be disturbed by timber harvest, the prospect is greatly diminished under this scenario.

Cultural Resources

Although the potential for direct and cumulative impacts to prehistoric and historic archaeological sites is diminished under this alternative, timber harvesting could still damage such resources. In addition, impacts to natural resources of importance to Native Americans may still occur, but at a reduced level.

Circulation/Transportation

Under the No Project/No Build Alternative only traffic related to sporadic timber production and Christmas tree sales would occur. These temporary impacts would not be new and would be a continuation of previous activity. Level of Service would not deteriorate on a permanent basis, due to the project, and no traffic signals would be required, due to the project. Temporary traffic controls could become necessary during a timber harvest event. Increased need for park and ride spaces, and pedestrian and bikeway facilities would not occur.

Noise

Noise increases related to project construction, increases in traffic along Yankee Jim's Road and Foresthill Road, and occupancy of the site, such as golf course operations, recreational vehicle park noise and wastewater treatment plant noise, would not occur; however, sporadic noise from timber production and harvest could occur. This would include noise from diesel engines, trucks, mechanical saws and other related equipment.

Health and Safety

Under the No Project/No Build Alternative, there would be no risk of upset related to the wastewater treatment plant or wastewater disposal. Impacts related to exposure of persons to contaminated sites, wildland fire, seismic and geologic hazards and abandoned mines would be greatly reduced. However, due to the history of the site there remains the potential for persons engaged in timber production to be exposed to hazardous conditions related to previous mining activity.

No Project/Limited Development Alternative

Under the No Project/Limited Development Alternative, the project site will be developed in accordance with the existing Foresthill General Plan land use designations, existing land divisions and available infrastructure. The existing General Plan designates the project site for Forestry and Rural Residential. In addition to forestry and related uses permitted in the Forestry designation, the Rural Residential designation allows detached single-family dwellings and secondary dwellings; agricultural uses, equestrian facilities, and limited agricultural support businesses; resource extraction uses; various facilities and services that support residential neighborhoods, such as churches, schools, libraries, child care and medical facilities; and parks and necessary public utility and safety facilities. It has been determined that the above described General Plan and Zoning designations would allow development of a maximum of 591 non-age

restricted dwelling units on the project site, although the actual number of dwelling units that could be developed would be determined by the type of wastewater disposal and terrain (slope).

The following impacts have been analyzed in comparison to the proposed project:

Land Use

Land use would remain unchanged on the 2,025 acres of the site designated for Forestry, but as many as 591 dwellings and related uses could be constructed on the portion designated Rural Residential, consistent with the land use designations contained in the 1981 Foresthill General Plan. The Draft Foresthill Divide Community Plan proposes that no more than 533 dwelling units be constructed on the site and a conflict would exist with this alternative, if the Draft Plan were adopted. The northern 2,025 acres of the site would remain available for timber (including Christmas tree) production. Because the site is highly productive for timber, it has been estimated that active timber harvesting could occur again in less than 20 years. Continued commercial timber harvesting could result in temporary land use conflicts, and impacts related to traffic, noise, aesthetics and water quality that will be addressed below. Construction of 591 dwelling units and related uses would create impacts similar to the project; however, they would be of a reduced scale and would be limited to the southern 591 acres of the site.

Aesthetics

Although the project site is undeveloped open space, it is not undisturbed and the northern 2,025 acres would not remain undisturbed under this alternative. The 2,025 acres have been logged in the past and most tree cover is second growth. Portions of the area have been reforested, including trees planted for Christmas tree production. Because the site is highly productive for timber, it has been estimated that active timber harvesting could occur again in less than 20 years resulting in alteration of views of the site from roadways and adjoining properties as a result of tree removal. However, permanent tree removal on the 2,025 acres would not occur, as would be the case with the project, due to construction of homes, roads, parking areas and other permanent improvements on this portion of the site. Aesthetic impacts on the 2,025 acres would generally be temporary and variable in nature as trees are harvested and replaced. Aesthetic changes occurring on the southern 591 acres with construction of infrastructure, 591 homes and related uses would be permanent in nature and would be similar to the proposed project: tree removal, grading and new sources of light and glare, including night sky impacts. Because densities would be lower under this alternative (one unit to the acre rather than densities as high as six units to the acre under the proposed project) more tree cover would likely remain, somewhat reducing visual impact.

Community Development

Under this alternative, several impacts related to community development would be reduced due to the fact that the northern 2,025 acres would remain in open space. However because 591 dwelling units and related uses would be constructed on the southern portion of the site, impacts related to population increase, growth inducement and creation of a jobs/housing imbalance could occur, although to a lesser degree than with the project. The only jobs generated would be temporary jobs related to future timber harvests, Christmas tree sales and construction, although

some jobs could potentially be created by uses related to residential development (e.g., schools, libraries, child care). The community, therefore, would be deprived of some of the full time permanent jobs to be created by the proposed project (e.g., professional office uses, golf course, equestrian center). Affordable housing would be constructed to the extent it is required by the County's Housing Element at the time of project approval. Impacts related to public services such as police, fire protection, medical response, wastewater treatment and disposal, stormwater drainage and adequate water supply would occur due to the 591 dwelling units; however, they would generally be reduced proportionally. Because the 591 units would not be age restricted (as compared to 513 non-age restricted units for the proposed project), a potential increase in impacts to facilities such as schools and park and recreation facilities could actually occur under this alternative. Because only 591 dwelling units could be constructed on parcels at least one-acre in size, it is unlikely that a community wastewater treatment and disposal system would be constructed.

Natural Resources

Because the northern 2,025 acres would remain undeveloped, most impacts related to natural resources would not occur on this portion of the site. However, future timber harvesting and Christmas tree production would continue to be permitted. Road building and heavy equipment use related to timber production and harvest would cause ground disturbance, although not to the same degree as the project. The potential for lack of mass balance, extensive grading and cut and fill areas would not occur within the 2,025 acres designated for Forestry; however it could occur in the 591 acres to be developed with residences and related uses. Forest habitat would be disturbed, but not to the same degree as with the project. Timber harvest, growing of Christmas trees and construction of infrastructure and roads may result in the disturbance of habitat for Brandegee's clarkia and could also result in disturbance of valley elderberry longhorn beetle habitat. Habitat for raptors and other migratory and resident birds, Pacific fisher, pine marten and special-status bat species could also be disturbed. Riparian areas, wetlands and oak trees may be disturbed. Although impacts related to timber harvest and residential development may be cumulative, they would not have the same degree of impact as the project. Water quality impacts related to wastewater discharge would be reduced, although a community wastewater treatment and disposal system may not be constructed, which would increase the potential for septic tanks from 66 septic tanks under the project to 257 (assuming 2.3 acres per septic tank). This could have adverse water quality impacts. Impacts related to erosion and sedimentation would still occur as a result of timber harvest, growing of Christmas trees and construction of infrastructure and residences. Urban runoff could occur from residential lots, parking lots and roadways. Permanent structures could be threatened by flooding and could impede flood flows, if not properly sited. Air quality impacts related to exhaust and fugitive dust emissions caused by timber harvesting would be sporadic, and similar to construction emissions if the project were built. Mobile source emissions would be continuous from the 591 residential units and related uses, but would be less than the project. Odors caused by a wastewater treatment and disposal system may or may not occur, depending on whether one is built. Five-hundred-ninety-one acres of timberland would be lost. Although the potential exists for paleontological resources to be disturbed, the reduced scale of this alternative reduces the prospect.

Cultural Resources

Although the potential for direct and cumulative impacts to prehistoric and historic archaeological sites is diminished under this alternative, timber harvesting and infrastructure and residential and related construction could still damage such resources. In addition, impacts to natural resources of importance to Native Americans may still occur, but at a reduced level.

Circulation/Transportation

Under this alternative, traffic related to sporadic timber production and Christmas tree sales would occur and trips related to 591 dwellings and related uses would also occur. Timber related impacts would not be new and would be a continuation of previous activity. Level of Service would deteriorate due to the 591 dwellings and related uses; however, impacts would be reduced in scale as compared to the proposed project. Traffic signals could be required due to the project, and temporary traffic controls could become necessary during a timber harvest event. Increased need for park and ride spaces, and pedestrian and bikeway facilities could also occur.

Noise

Noise increases related to residential and related construction and uses, increases in traffic along Yankee Jim's Road and Foresthill Road, and occupancy of the site would occur. Sporadic noise from timber production and harvest could also occur, including noise from diesel engines, trucks, mechanical saws and other related equipment.

Health and Safety

There may or may not be risk of upset related to a community wastewater treatment plant. There would be a potential for upset due to installation of as many as 257 septic tanks. Impacts related to exposure of persons to contaminated sites, wildland fire, seismic and geologic hazards and abandoned mines would be reduced. Due to the history of the site there remains the potential for persons engaged in timber production living or working on the site to be exposed to hazardous conditions related to previous mining activity.

4.2.2 REDUCED PROJECT, FDCP ALTERNATIVE

The Draft Foresthill Divide Community Plan and Development Standards require that a specific plan be prepared for the Forest Ranch project site and limit the site to a maximum of 533 dwelling units on 1,380 acres. The balance of the site would be placed in a Forestry, 160 Acre Minimum Parcel Size designation and zoned Timberland Production Zone (TPZ). Residential units and lots would generally be concentrated closer to the core of Foresthill, with densities reduced as development occurs further out. Open space and trails would be emphasized. Other recreational development may include a golf course, equestrian facilities, mountain bike courses and related facilities. No recreational vehicle park would be developed. Architectural and design standards would be applied that emphasize relationship to existing terrain and natural features, views and viewsheds. A homeowners association or similar entity would be formed to ensure compliance with above architectural and design standards.

In the context of this alternative, the following impacts have been analyzed in comparison to the proposed project:

Land Use

Land use would remain unchanged on the 1,236 acres of the site proposed to be designated as Forestry and zoned TPZ, but as many as 533 dwellings, a golf course and equestrian facility could be constructed on the 1,380 acres designated for development. The northern 1,236 acres of the site would remain available for timber (including Christmas tree) production and open space use. Because the site is highly productive for timber, it has been estimated that active timber harvesting could occur again in less than 20 years. Continued commercial timber harvesting could result in temporary land use conflicts, and impacts related to traffic, noise, aesthetics and water quality that will be addressed below. Construction of 533 dwelling units, a golf course and equestrian facility could create land use conflicts and other impacts addressed below that are similar to those caused by the project; however, they would be of a reduced scale and would be limited to the southern 1,380 acres of the site. Because residential units and lots would generally be concentrated closer to the core of Foresthill, the extent of the area affected by potential land use conflicts will be further reduced.

Aesthetics

Although the project site is undeveloped open space, it is not undisturbed and the northern 1,236 acres would not remain undisturbed under this alternative. The 1,236 acres have been logged in the past and most tree cover is second growth. Portions of the area have been reforested, including trees planted for Christmas tree production. Because the site is highly productive for timber, it has been estimated that active timber harvesting could occur again in less than 20 years resulting in alteration of views of the site from roadways and adjoining properties as a result of tree removal. However, permanent tree removal on the 1,236 acres would not occur, as would be the case with the project, due to construction of homes, roads, parking areas and other permanent improvements on this portion of the site. Aesthetic impacts on the 1,236 acres would generally be temporary and variable in nature as trees are harvested and replaced. Aesthetic changes occurring on the southern 1,380 acres with construction of infrastructure, 533 homes, a golf course and equestrian facility would be permanent in nature and would be similar to the proposed project: tree removal, grading and new sources of light and glare, including night sky impacts. Because densities would be lower under this alternative (a gross density of approximately one unit per 2.5 acres, as compared to a gross density of approximately one unit per 1.2 acres under the project) more tree cover would remain, reducing visual impact.

Community Development

Under this alternative, several impacts related to community development would be reduced due to the fact that the northern avoided 1,236 acres would remain in open space. However because 533 dwelling units could be constructed on the southern portion of the site, impacts related population increase, growth inducement and creation of a jobs/housing imbalance could occur, although to a lesser degree than the project. Jobs would include temporary jobs related to future timber harvests, Christmas tree sales and construction, and jobs created by the potential

development of a golf course and equestrian facility. Affordable housing would be constructed to the extent it is required by the County's Housing Element at the time of project approval. Impacts related to public services such as police, fire protection, medical response, wastewater treatment and disposal, stormwater drainage and adequate water supply would occur due to the 533 dwelling units, golf course and equestrian facility; however, they would generally be reduced proportionally. Because the 533 units would not be age restricted (as compared to 513 non-age restricted units for the proposed project), a potential increase in impacts to facilities such as schools and park and recreation facilities could actually occur under this alternative. Because only 533 dwelling units could be constructed, it is less likely that a community wastewater treatment and disposal system would be constructed; however, if units are clustered on smaller lots closer to the core of Foresthill, a package treatment system would be feasible.

Natural Resources

Because the northern 1,236 acres would remain undeveloped, most impacts related to natural resources would not occur on this portion of the site. However, future timber harvesting and Christmas tree production would continue to be permitted. Road building and heavy equipment use related to timber production and harvest would cause ground disturbance, although not to the same degree as the project. The potential for lack of mass balance, extensive grading and cut and fill areas would not occur within the northern 1,236 acres; however it could occur in the 1,380 acres to be developed with residences, a golf course and equestrian facility, although proposed Standards contained in the Draft Community Plan will limit such activity. Forest habitat would be disturbed, but not to the same degree as with the project. Timber harvest, growing of Christmas trees and construction of infrastructure, a golf course, equestrian facility and roads may result in the disturbance of habitat for Brandegee's clarkia and could also result in disturbance of valley elderberry longhorn beetle habitat. Habitat for raptors and other migratory and resident birds, Pacific fisher, pine marten and special-status bat species could also be disturbed. Riparian and wetland areas and oak trees may be disturbed. Although impacts related to timber harvest and other development may be cumulative, they would not have the same degree of impact as the project. Although water quality impacts related to wastewater discharge would be reduced, a community wastewater treatment and disposal system may not be constructed, which would increase the potential for septic tanks from 66 under the project to 533 (assuming at least 2.3 acres per septic tank). This could have adverse water quality impacts. Impacts related to erosion and sedimentation would still occur as a result of timber harvest, growing of Christmas trees and construction of infrastructure and residences. Urban runoff could occur from residential lots, parking lots, the golf course and roadways. Runoff could also occur from the equestrian facility. Permanent structures could be threatened by flooding and could impede flood flows, if not properly sited. Air quality impacts related to exhaust and fugitive dust emissions caused by timber harvesting would be sporadic, and similar to construction emissions if the project were built. Mobile source emissions would be continuous from the 533 residential units, golf course and equestrian facility. Odors caused by a wastewater treatment and disposal system may or may not occur, depending on whether one is built. One-thousand-three-hundred-eighty acres of timberland would be lost. Although the potential exists for paleontological resources to be disturbed, the reduced scale of this alternative reduces the prospect.

Cultural Resources

Although the potential for direct and cumulative impacts to prehistoric and historic archaeological sites is diminished under this alternative, timber harvesting and infrastructure and residential, golf course and related construction could still damage such resources. In addition, impacts to natural resources of importance to Native Americans may still occur, but at a reduced level.

Circulation/Transportation

Under this alternative, traffic related to sporadic timber production and Christmas tree sales would occur and trips related to 533 dwellings, a golf course and equestrian facility would also occur. Timber related impacts would not be new and would be a continuation of previous activity. Level of Service would deteriorate due to the 533 dwellings and other uses; however, impacts would be reduced in scale as compared to the proposed project. Traffic signals could be required due to the project, and temporary traffic controls could become necessary during a timber harvest event. Increased need for park and ride spaces, and pedestrian and bikeway facilities could also occur.

Noise

Noise increases related to residential, golf course and related construction and uses, increases in traffic along Yankee Jim's Road and Foresthill Road, and occupancy of the site would occur. Sporadic noise from timber production and harvest could also occur, including noise from diesel engines, trucks, mechanical saws and other related equipment.

Health and Safety

There may or may not be risk of upset related to a community wastewater treatment plant. There would be a potential for upset due to installation of as many as 533 septic tanks. Concerns regarding exposure of persons to contaminated sites, wildland fire and seismic and geologic hazards would be reduced due to the reduced size of the project. Due to the history of the site there remains the potential for persons engaged in timber production or living, working or recreating on the site to be exposed to hazardous conditions related to previous mining activity.

4.2.3 REDUCED PROJECT, AGE RESTRICTED COMMUNITY ONLY

This alternative assumes that the entire project would be age restricted and would cater only to those 55 years of age or older. The number of residential units would be limited to a maximum of 1,700. These units would be clustered near the golf course and the existing community core, with the remainder of the site remaining in natural open space. The Development Standards described in Appendix B of the proposed Foresthill Divide Community Plan would be applied to the project, including minimum open space requirements and limitations on commercial uses; however, a variety of housing types would be permitted (including attached and detached units) to encourage clustering, affordability and density closer to the core of the community. The equestrian center and recreational vehicle park would be retained.

In the context of this alternative, the following impacts have been analyzed in comparison to the proposed project:

Land Use

It is assumed under this alternative that at least 1,128 acres of the site would remain in natural open space as proposed by the project. Land use would remain unchanged in natural open space areas, but it is assumed that trail construction and other outdoor recreation activities may occur and that portions of the open space area could potentially be used as a spray field for wastewater effluent disposal. As many as 1,700 age restricted dwellings, a golf course, equestrian facility and recreational vehicle park could be constructed on the remaining 1,488 acres. Although timber harvesting could occur in open space areas, it is most likely that it would occur in conjunction with fuel reduction programs, trail construction, or creation of an effluent disposal field. Fuel reduction and other forms of timber removal within open space areas could result in temporary land use conflicts, and impacts related to traffic, noise, aesthetics and water quality that will be addressed below. Construction of 1,700 dwelling units, a golf course, equestrian facility and recreational vehicle park could also create land use conflicts and other impacts that are similar to those caused by the project. Because residential units and other uses would be concentrated closer to the core of Foresthill, the extent of the area affected by potential land use conflicts will reduced as compared to the project.

Aesthetics

Although the project site is undeveloped open space, it is not undisturbed. The site has been logged in the past and most tree cover is second growth. Portions of the area have been reforested, including trees planted for Christmas tree production. Some tree removal could occur in designated open space areas as a part of a fuel reduction program, trail construction, or if a portion of the open space area is used as a spray field for wastewater effluent disposal. Aesthetic changes occurring on the 1,488 acres to be used for construction of 1,700 homes, a golf course, equestrian facility and recreational vehicle park would be permanent in nature and would be similar to the proposed project: tree removal, grading and new sources of light and glare, including night sky impacts. Because densities would be lower under this alternative (a gross density of approximately one unit per 1.5 acres, as compared to a gross density of approximately one unit per 1.2 acres under the project) more tree cover would be preserved, reducing visual impact. With clustering, it may also be feasible to screen and more effectively hide residential structures than with conventional lot subdivisions.

Community Development

Under this alternative, several impacts related to community development would be reduced as compared to the project due to the fact that there are fewer residential units and all are age restricted. Impacts related population increase, growth inducement and creation of a jobs/housing imbalance would occur, although to a lesser degree than with the project. Jobs generated would include construction related work and jobs created by the development of a golf course, recreational vehicle park and equestrian facility. Affordable housing would be constructed to the extent it is required by the County's Housing Element at the time of project

approval. Impacts related to public services such as police, fire protection, medical response, wastewater treatment and disposal, stormwater drainage and adequate water supply would occur due to the 1,700 dwelling units, golf course, recreational vehicle park and equestrian facility; however, they would be reduced as compared to the project. Because the 1,700 units would be age restricted (as compared to inclusion of 513 non-age restricted units in the proposed project), a decrease in impacts to facilities such as schools and park and recreation facilities will occur under this alternative. Because of the number of units and density proposed, a community wastewater treatment and disposal system would be constructed and would require professional management.

Natural Resources

Heavy equipment use related to fuel reduction, trail construction and other tree removal activities in open space areas would cause ground disturbance, although not to the same degree as the project. The potential for lack of mass balance, extensive grading and cut and fill areas could occur in the 1,488 acres to be developed with residences, a golf course, recreational vehicle park and equestrian facility, although proposed Standards contained in the Draft Community Plan will limit such activity. Forest habitat would be disturbed, but not to the same degree as with the project. Fuel reduction, construction of infrastructure, a golf course, recreational vehicle park, equestrian facility and roads may result in the disturbance of habitat for Brandegee's clarkia and could also result in disturbance of valley elderberry longhorn beetle habitat. Habitat for raptors and other migratory and resident birds, Pacific fisher, pine marten and special-status bat species could also be disturbed. Riparian and wetland areas and oak trees may be disturbed. Water quality impacts related to wastewater discharge would be reduced because no septic tanks or other onsite disposal system would be utilized and the potential for 66 septic tanks under the project would be eliminated. Similar to the project, impacts related to erosion and sedimentation would still occur as a result of construction of infrastructure, roads, residences, a golf course, recreational vehicle park and equestrian facility. Urban runoff would occur, similar to the project. Runoff could also occur from the equestrian facility. Permanent structures could be threatened by flooding and could impede flood flows, if not properly sited. Air quality impacts related to exhaust and fugitive dust emissions would occur during construction and mobile source emissions would be continuous from the 1,700 residential units, golf course, recreational vehicle park and equestrian facility. Odors caused by a wastewater treatment and disposal system may occur as well as odors from the equestrian facility. The reduced development footprint may aggravate this potential. One-thousand-four-hundred-eighty-eight acres of timberland would be permanently lost and another 1,128 acres would have limited utility for timber production, similar to the project. The potential exists for paleontological resources to be disturbed, similar to the project, although fewer structures and roads will be built, marginally reducing the impact.

Cultural Resources

The potential for direct and cumulative impacts to prehistoric and historic archaeological sites is marginally reduced under this alternative due to the fact that fewer structures and roads will be built. The harvesting and management of traditional plants of importance to Native Americans may also be affected.

Circulation/Transportation

Under this alternative trips related to 1,700 dwellings, a golf course, recreational vehicle park and equestrian facility would occur. Any timber removal/fuel reduction related impacts would not be new and would be a continuation of previous activity. Level of Service would deteriorate due to the 1,700 dwellings and other uses; however, impacts would be reduced in scale as compared to the proposed project. This is particularly true because all units will be age restricted, which will minimize trips to and from work and school during peak hours. Traffic signals could be required due to the project, and temporary traffic controls could become necessary during a timber removal event. Need for park and ride spaces, and pedestrian and bikeway facilities would also occur similar to the project, although the age restriction may minimize this effect.

Noise

Noise increases related to residential, golf course and related construction and uses, increases in traffic along Yankee Jim's Road and Foresthill Road, and occupancy of the site would occur.

Health and Safety

There could be risk of upset related to a community wastewater treatment plant. There would be no potential for upset due to installation of septic tanks. Concerns regarding exposure of persons to contaminated sites, wildland fire and seismic and geologic hazards would be reduced due to the reduced size of the project and clustering closer to the core of the community. Due to the history of the site there remains the potential for persons living, working or recreating on the site to be exposed to hazardous conditions related to previous mining activity.

4.3 CONCLUSIONS

In accordance with State CEQA Guidelines, all reasonable project alternatives have been evaluated to determine their comparative environmental superiority. The impacts of the proposed project that have been identified as significant, if not mitigated, include:

- Land use conflicts between the proposed Forest Ranch project and existing and planned land uses in the vicinity of the project site.
- Aesthetic impacts due to tree removal, grading and new construction.
- Introduction of new sources of light and glare with buildout of the project site, and impacts of increased lighting on the night sky.
- Impact of the proposed project on compliance with the Housing Element of the Placer County General Plan and meeting the housing needs in the community of Foresthill.
- Provision of adequate public protection to serve the proposed project.

- Provisions of adequate fire protection services and facilities and emergency medical response to serve the proposed project.
- Provision of adequate solid waste collection and disposal services for the proposed project.
- Provision of adequate parks and recreation facilities and programs to serve the proposed project.
- Provision of adequate school facilities to serve the proposed project.
- Provision of adequate road maintenance and snow removal to serve the proposed project.
- Provision of adequate wastewater disposal systems to serve the proposed project.
- Provision of a safe and adequate water supply and fire flow to serve the proposed project.
- Provision of adequate stormwater drainage system to serve the proposed project.
- Construction activities resulting in ground disturbance (topographic alteration) could result in a moderate potential for ground instability and erosion within the project site.
- Potential lack of mass balance due to grading on the project site, requiring importation or exportation fill.
- Implementation of the proposed project may remove habitat for Brandegee's clarkia potentially occurring on the project site.
- Implementation of the proposed project may result in the removal of potential valley elderberry longhorn beetle habitat.
- Implementation of the proposed project will result in the removal of potential nesting habitat for raptors and other migratory residents.
- Implementation of the proposed project will remove potential habitat for Pacific fisher and pine marten.
- Implementation of the proposed project will remove potential roosting habitat for special-status bat species.
- Implementation of the proposed project will result in the removal and disturbance of oak trees.
- Implementation of the proposed project could result in fill of jurisdictional waters of the U.S.
- Implementation of the proposed project could result in the removal and disturbance of riparian habitat.
- Development of the site could destroy or alter unknown paleontological resources.
- Water quality standards/waste discharge requirements violation: Potential degradation of surface and groundwater quality due to installation and operation of community and individual wastewater treatment and disposal systems.
- Water quality degradation due to erosion, sedimentation and urban runoff due to implementation of the proposed project.

- Placement of housing or other structures in flood prone areas during implementation of the proposed project.
- Cumulative impacts created by runoff due to implementation of the proposed project that may result in on- or off-site flooding.
- Construction activities could result in release of naturally-occurring asbestos.
- Exposure of persons to odors from on-site wastewater treatment system operations and the equestrian center.
- Potential project-related effects on prehistoric or historic archaeological sites on the project site.
- Potential impacts to natural resources of importance to contemporary Native Americans, such as traditional plants.
- Cumulative impacts to Native American sites in the Foresthill Divide.
- Development of the proposed project is anticipated to result in substantial increases in traffic volumes and deterioration in Level of Service on study area roadways under Existing Plus Project conditions.
- Need for new traffic signals in the Foresthill community as a result of the proposed project under Existing Plus Project conditions.
- Development of the proposed project is anticipated to result in substantial increases in traffic volumes and deterioration in Level of Service on study area roadways under Future Plus Project conditions.
- Need for new traffic signals in the Foresthill community as a result of the proposed project under Future base conditions and Future Plus Project conditions.
- Need for additional or modified transit service as a result of the proposed project.
- Need for additional park and ride spaces as a result of the proposed project.
- Need for additional pedestrian and bikeway facilities as a result of the proposed project.
- Activities associated with construction will result in elevated noise levels within the immediate area.
- Activities associated with maintenance of the proposed golf course could result in noise levels which may be annoying at proposed new residences adjacent to the golf course.
- Noise generated by the 100-space recreational vehicle park may result in noise levels which exceed acceptable standards at nearby residential uses.
- Noise generated by the wastewater treatment plant may result in noise levels which exceed acceptable standards at nearby residential uses.
- Risk of upset associated with operation of the wastewater treatment facility.
- Potential to encounter contaminated site(s) on the project site.

- Increased exposure of people and property to wildfire hazards on the project site due to the proposed Forest Ranch project.
- Increased exposure of people and property to geologic hazards on the project site due to the proposed Forest Ranch project.

Significant impacts which cannot be fully mitigated include:

- Consistency of the proposed Forest Ranch project with the land use designations and policies of the Draft Foresthill Divide Community Plan.
- Alteration of views of the project site from roadways along and through the site, and from surrounding properties.
- Development of the proposed project would increase the population in the community of Foresthill (growth inducing impact).
- Development of the proposed project would promote an imbalance of jobs and housing in the community of Foresthill.
- Cumulative contribution of the proposed project to the loss of habitat and forage lands, habitat degradation due to encroaching urbanization, direct impacts to sensitive species, habitat fragmentation, and obstruction of movement corridors, and harassment of wildlife by humans and pets.
- Loss of timber production land due to proposed development of the project site.
- Exhaust and fugitive dust emissions generated by construction activities at all phases of the proposed project, including excavation and grading, construction vehicle traffic, and wind blowing over exposed earth.
- Operation of the proposed Forest Ranch project will result in the generation of both mobile and stationary source air pollutants.
- Exposure of people to hazards associated with abandoned mines on the project site.

Accordingly, alternatives that reduce or avoid these impacts represent environmentally superior alternatives to the proposed project. As described at the beginning of this Chapter, if the environmentally superior alternative is the "no project" alternative, the EIR must also identify an environmentally superior alternative among the remaining alternatives.

Based upon the analysis contained and documented in Chapter Three of this EIR and the analysis presented above (including the comparison with project objectives), the environmentally superior alternative would be the No Project/No Build Alternative. However, this alternative will not permit implementation of the 1981 Foresthill General Plan or the Draft Foresthill Divide Community Plan. Further, it does not permit implementation of any of the project's objectives, as set forth in Chapter Two of this EIR.

Among the remaining alternatives, the Reduced Project, FDCP Alternative is the environmentally superior alternative. However, it also does not meet most of the project's

objectives. The environmental superiority of this alternative is enhanced if the 533 dwelling units are clustered closely enough to allow construction of a community wastewater treatment and disposal system.

CHAPTER FIVE
CONSEQUENCES OF PROJECT IMPLEMENTATION
MANDATORY CEQA SECTIONS

5.1 EFFECTS FOUND NOT TO BE SIGNIFICANT

Section 15128 of the State CEQA Guidelines requires that an EIR contain a statement briefly indicating the reasons that various possible new significant effects of a project were determined not to be significant, and were therefore not discussed in detail in the EIR. For this project, those effects not found to be significant were determined based on:

1. Appendix G of the CEQA Guidelines;
2. The Initial Study (December 2001) prepared by County staff;
3. The Notice of Preparation;
4. Responses to the Notice of Preparation contained in Appendix A; and
5. The evaluation of impacts in Chapter Three of this EIR.

The following project effects were thus determined to be less than significant:

- Disruption or division of the physical arrangement of an established community (including a low-income or minority community).
- Displacement of existing housing, especially affordable housing.
- Altered direction or rate of flow of groundwater.
- Substantial reduction in the amount of groundwater otherwise available for public water supplies.
- Rail, waterborne, or air traffic impacts.

5.2 SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

Since the phrase "significant effect on the environment" occupies such a critical role in the preparation and review of an EIR, the following definition, as contained in Section 15382 of the State CEQA Guidelines, is provided for reference:

> "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, mineral, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

Section 15126.2(b) of the State CEQA Guidelines requires that the EIR describe any significant impacts, including those that can be mitigated but not reduced to a level of insignificance.

Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described.

The environmental effects of the proposed development on selected aspects of the environment are discussed in detail in Chapter Three of this EIR. Significant or potentially significant effects that cannot be avoided if the proposed project is approved and development is carried out as proposed include:

- Consistency of the proposed Forest Ranch project with the land use designations and policies of the Draft Foresthill Divide Community Plan.
- Alteration of views of the project site from roadways along and through the site, and from surrounding properties.
- Development of the proposed project would increase the population in the community of Foresthill (growth-inducing impact).
- Development of the proposed project would promote an imbalance of jobs and housing in the community of Foresthill.
- Cumulative contribution of the proposed project to the loss of habitat and forage lands, habitat degradation due to encroaching urbanization, direct impacts to sensitive species, habitat fragmentation, and obstruction of movement corridors, and harassment of wildlife by humans and pets.
- Loss of timber production land due to proposed development of the project site.
- Exhaust and fugitive dust emissions generated by construction activities at all phases of the proposed project, including excavation and grading, construction vehicle traffic, and wind blowing over exposed earth.
- Operation of the proposed Forest Ranch project will result in the generation of both mobile and stationary source air pollutants.
- Exposure of people to hazards associated with abandoned mines on the project site.

Each impact is described in Chapter Three of this EIR. Other impacts attributable to implementation of the proposed project have either been determined to be less than significant, or are capable of being mitigated to less than significant levels by measures recommended in this EIR.

5.3 IRREVERSIBLE IMPACTS

The following excerpt from Section 15126.2(c) of the State CEQA Guidelines defines the nature of this analysis:

> Uses of non-renewable 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.

Development of the proposed project will commit non-renewable resources during construction, and ongoing utility services provided to the project. During construction, the use of energy resources and building materials will essentially be irreversible and irretrievable. Substantial amounts of energy and other natural resources will be consumed during the life of the project. The loss of over 2,000 acres of commercial timberland is described in Chapter Three of this EIR and is also an irreversible impact of the proposed project.

The proposed project will provide additional residential, recreational and professional office development and employment opportunities in the community, at the expense of commercial timber production on the project site, as well as the other adverse impacts reported in this EIR.

5.4 CUMULATIVE IMPACTS

Section 15130 of the State CEQA Guidelines calls for the following discussion of the cumulative impacts of the proposed project:

(a) An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in section 15065(c), and the cumulative impact is significant. 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.

(1) As defined in 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. An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.

(2) When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. A lead agency shall identify facts and analysis supporting the lead agency's conclusion that the cumulative impact is less than significant.

(3) An EIR may determine that a project's contribution to a significant cumulative impact will be mitigated to a level of less than significant and thus is not significant. A project's contribution is less than significant if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The lead agency shall identify facts and analysis supporting its conclusion that the contribution will be lessened or avoided.

(4) An EIR may determine that a project's contribution to a significant cumulative impact is de minimus and thus is not significant. A de minimus contribution means that the environmental conditions would essentially be the same whether or not the proposed project is implemented. *[NOTE: This was recently invalidated by the appellate court in Communities for a Better Environment v. California Resources Agency (2002) 103 Cal.App.4th 98.]*

(b) The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact. The following elements are necessary to an adequate discussion of significant cumulative impacts:

(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 areawide 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;

1. When utilizing a list, as suggested in paragraph (1) of subdivision (b), factors to consider when determining whether to include a related project should include the nature of each environmental resource being examined, the

location of the project and its type. Location may be important, for example, when water quality impacts are at issue since projects outside the watershed would probably not contribute to a cumulative effect. Project type may be important, for example, when the impact is specialized, such as a particular air pollutant or mode of traffic.

2. "Probable future projects" are those projects requiring an agency approval for an application which has been received at the time the notice of preparation is released, unless abandoned by the applicant, those public agency projects for which money has been budgeted or projects included in an adopted capital improvements program, general plan, regional transportation plan, or other similar plan or included in summary of projections of projects (or development areas designated) in general plans or similar plan, and those projects anticipated as later phases of a previously approved project (e.g. a subdivision); or those public agency projects for which money has been budgeted. *[NOTE: A portion of this was recently invalidated by the above-cited case to the extent that it is read in the disjunctive.]*

3. Lead agencies should define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used.

(2) 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

(3) 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.

(c) With some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis.

(d) Previously approved land use documents such as general plans, specific plans, and local coastal plans may be used in cumulative impact analysis. A pertinent discussion of cumulative impacts contained in one or more previously certified EIRs may be incorporated by reference pursuant to the provisions for tiering and program EIRs. No further cumulative impacts analysis is required when a project is consistent with a general, specific,

master or comparable programmatic plan where the lead agency determines that the regional or areawide cumulative impacts of the proposed project have already been adequately addressed, as defined in Section 15152(e), in a certified EIR for that plan.

(e) If a cumulative impact was adequately addressed in a prior EIR for a community plan, zoning action, or general plan, and the project is consistent with that plan or action, then an EIR for such a project should not further analyze that cumulative impact, as provided in Section 15183(j).

Thus, cumulative impacts are two or more effects that, when combined, are considerable or compound other environmental effects. Each cumulative impact is determined to have one of the following levels of significance: less than significant, significant, or significant and unavoidable.

This EIR has identified the following significant cumulative impacts:

- Cumulative contribution of the proposed project to the loss of habitat and forage lands, habitat degradation due to encroaching urbanization, direct impacts to sensitive species, habitat fragmentation, and obstruction of movement corridors, and harassment of wildlife by humans and pets. As proposed, the project, in conjunction with other future developments on the Foresthill Divide, would contribute to the loss of natural, undisturbed open space in the region, resulting in a decline of biological resources and species diversity. The encroachment of urbanized areas into natural, relatively undisturbed open space is a direct threat to wildlife species in Foresthill, and increased human use results in the degradation of natural undisturbed habitats. Road construction, site grading, and the construction of residential and recreational uses directly removes native plant species, removes habitat for wildlife, and increases the fragmentation of open space in the region, effecting wildlife dispersal. Development of the Forest Ranch project, in conjunction with future projects, will result in the restriction of wildlife movement. No mitigation measures are available, and the impact remains significant, cumulative and unavoidable.

- Cumulative impacts created by runoff due to implementation of the proposed project that may result in on- or off-site flooding. The existing drainages accept runoff from approximately 2,615 onsite acres, and approximately 800 acres offsite which drain through project site watercourses. The net total area to be developed is the net runoff increase equivalent of approximately 200 acres of existing forested land at a runoff coefficient of 0.15. This represents an estimated 6 percent increase in total runoff to be accommodated at project buildout. After mitigation, this impact would be less than significant.

- Operation of the proposed Forest Ranch project will result in the generation of both mobile and stationary source air pollutants. Project operation will introduce stationary, area, and mobile sources of criteria air pollutant emissions to the study area. The primary area and stationary sources will include residential gas heaters, residential fireplaces, residential landscaping equipment, and commercial landscape maintenance equipment. Other area

source emissions will include those from residential barbecues and consumer product use; however, emissions from these sources will be minor. Mobile sources will include exhaust emissions from motor vehicles (including recreational vehicles) and re-entrained dust emissions from motor vehicle travel on paved roads. After mitigation, this impact remains significant and cumulative.

- Loss of timber production due to proposed development of the project site. Development of the project site will result in the conversion of over 2,000 acres of productive timberland to residential, open space and recreational uses. According to the California Department of Forestry and Fire Protection (CDF), although most of the property has been logged and most of the merchantable timber removed in accordance with an active timber harvesting plan (THP), proposed helicopter yarding has not been done. According to CDF, the timberland is highly productive and portions of the site could be harvested in less than 20 years. CDF has indicated that in the long term with proper management, the property could grow 1.2 to 1.6 million board feet of timber per year. CDF concludes that converting this timberland to other uses will lower productivity and reduce the timber supply in the region. The applicant had a consulting forester prepare a response to the CDF comments, which is presented in Impact 3.4.23. Notwithstanding the disagreement among experts regarding the potential future productivity of the project site for timber, the project applicants have not expressed interest in continuing to log the project site. The closure of sawmills in the project area, the cost of transporting logs to sawmills out of the area, the long-term timetable of future harvests, and the environmental impacts of timber harvesting on the project site and area waterways make prospects for future timber harvesting questionable, even if the project applicants should decide to pursue it. Nevertheless, development of the project as proposed would result in the loss of this timber resource, and would contribute to the cumulative loss of timber resources in the region. No mitigation measures are available, and the impact remains significant, cumulative and unavoidable.

The following is a summary of other projects in the vicinity of the project site that, together with the proposed project, could contribute incrementally to impacts discussed above that are cumulatively significant:

- Nellie Jo Ranch is a proposed planned residential development containing 80 single family residential lots, ranging in size from 3 to 11.89 acres and averaging 3.73 acres, and 83.08 acres of open space on a total of 403 acres. The project is located northwest of Spring Garden Road, east of Eagle Crest in the Foresthill area.

- Raintree Ranch Subdivision is a proposal for 130 single-family lots ranging from 0.69 acres to 1.91 acres in size on a 288 acre project site. The project is located on the north side of Foresthill Road, 500’ east of Todd Valley, Foresthill.

- The Walnut Orchard subdivision is a proposed 15-lot subdivision with two acre average lot size and eight acres of common area on a 40 acre parcel. The project is located on Sermak Lane, Foresthill, 100 yards east of the westerly Todd Valley Road and Foresthill Road intersection.

- The Wilson subdivision is a 16-lot subdivision with lots ranging from 2.3 to 3.3 acres in size and 30.6 acres proposed as Open Space on an 80 acre site. The project is located southeast of the Trailhead Subdivision in the southeast portion of Todd Valley, Foresthill.

In accordance with Section 15130(d) of the State CEQA Guidelines, this EIR incorporates by reference the cumulative impacts analysis contained in the Placer County General Plan EIR. As presented in the Foresthill Divide Community Plan Draft Environmental Impact Report, the estimated population of the FDCP Plan area for 2000 is 5,600. The population projection for 2010 is a range from 6,467 to 9,091, and the estimated maximum buildout population for the Plan area is 13,500. This is within the context of the population of Placer County, which was 243,646 in 2000, a projected 325,648 in 2010, and a projected 391,245 in 2020. The proposed FDCP represents a substantial reduction in the buildout population of the existing 1981 Foresthill General Plan and the additional area included in the proposed FDCP area, which is 28,000+.

5.5 GROWTH INDUCING IMPACTS

Section 15126.2(d) of the State CEQA Guidelines provides the following direction regarding analysis of growth-inducing impacts:

> Discuss the ways in which the 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 that would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may further tax existing community service facilities so consideration must be given to this impact. Also discuss the characteristic of some projects that may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

In the context of the Foresthill General Plan, Impact 3.3.1-1 states that development of the proposed project would increase the population in the community of Foresthill. The Forest Ranch project proposes construction of a total of 2,213 housing units, of which 1,700 are proposed to be age-restricted (55 years of age or older), and 396 are proposed to be multi-family (Medium Density Attached Residential). The proposed project does not identify the number of age-restricted units by housing type (i.e., the number of single family units and multi-family units that will be age-restricted and non-age restricted, respectively.) The proposed recreational vehicle park would accommodate 100 units, but it is assumed that these will be visitors, not permanent residents. Average housing size, according to the 2000 U.S. Census, is 2.63 persons per household for Placer County, 2.61 for Census Tract 202 (which includes Foresthill), and 2.66 for the Foresthill Census Designated Place (CDP). Using the figure of 2.66 persons per household for the non-age restricted units, and the figure of 1.7 persons per household for the

age-restricted units, it can be estimated that a total of 4,255 persons would reside on the project site at buildout. Currently, no persons are living on the project site.
The 2000 U.S. Census population for the Foresthill CDP is 1,791, and for Census Tract 202 (which roughly correlates with, but is larger than, the proposed FDCP Plan area) is 5,794. As stated in the Initial Study for this project:

> The GPA and REA proposals will cumulative[ly] exceed official regional and local population projections. The Foresthill Divide has a historically slow growth rate (less than 2% [annually] for the past ten years.) Approval of the project proposals has the potential to accelerate the pace of development beyond the capability of the community to adapt. The area in question is undeveloped (with the exception of several logging operations within the recent past). A project (or projects) that would likely result from approval of the GPA and REA would induce substantial growth into an area not previously designated for it.

In comparison to the total 2000 population of the Foresthill CDP and Census Tract 202, the addition of up to 4,255 persons represents a substantial increase. Appendix G of the CEQA Guidelines provides that a project would normally be considered to have a significant impact if it would induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure). While the population growth rate in Placer County has been among the highest in the state, the population growth rate in the Foresthill area has been low (approximately 1.5 to 2.11 percent per year). Assuming a phased buildout of the Forest Ranch project of 10 percent per year, it can be estimated that an average of 425 additional persons would populate the site each year, which would represent an average annual growth rate of 7.3 percent (compared to the 5,794 population figure) and 24.7 percent (compared to the 1,791 figure). Both percentages substantially exceed the annual average growth rate for the community. Therefore, this EIR concludes that the growth-inducing impact of the proposed Forest Ranch project is significant and unavoidable. Other than selecting a Project Alternative with fewer dwelling units (and therefore lower population), no mitigation measures are available.

CHAPTER SIX
MITIGATION MONITORING AND REPORTING PROGRAM

Placer County has adopted a Mitigation Monitoring and Reporting Program (Chapter 18, Environmental Review, Article 18.28 of the Placer County Code). The County's program has two components, the standard mitigation monitoring program (Section 18.28.030) and the mitigation reporting plan (18.28.050). The standard mitigation monitoring program (Section 6.1 below) is utilized when the County's existing permitting process will serve as monitoring. The project specific reporting plan (Section 6.2) requires that each mitigation measure be listed along with an identification of individuals or agencies responsible for monitoring and verifying compliance, identification of when the mitigation measure will be implemented, the frequency of monitoring, performance criteria and identification of the cost, if appropriate. The project specific reporting plan is in a table format below.

6.1 STANDARD MITIGATION MONITORING PROGRAM

This program requires that mitigation measures adopted for discretionary projects, such as Forest Ranch, be included in the conditions of approval for that project. Compliance with conditions of approval is monitored by the County through a variety permit processes as listed below.

Development Review Committee
Improvements Plan Approval
Improvements Construction Inspection
Encroachment Permit
Final Map Recordation
Acceptance of Project as Complete
Building Permit Approval
Certificate of Occupancy

The issuance of any of the listed permits or County actions which must be preceded by a verification by County staff that certain conditions of approval/mitigation measures have been met shall serve as the required monitoring for those conditions of approval/mitigation measures. Mitigation measures that involve on-going monitoring require the preparation of a specific Mitigation Reporting Plan. The following listing includes those mitigation measures for the Forest Ranch project which will be monitored through County staff verification of required approvals.

LAND USE

3.1.3a *The proposed recreational vehicle park shall be relocated away from the boundaries of the project site, into the interior of the site, to buffer it from adjacent sensitive land uses.*

3.1.3b *The Rural Residential and Low Density Residential areas located adjacent to Forest Service property shall be relocated away from the Foresthill Work Center property,*

using the Open Space designation to buffer them from this existing use which is industrial in character.

3.1.3c *A Specific Plan shall be prepared for the project site that clearly delineates the location of proposed land uses and zoning.*

AESTHETICS

3.2.1a *Tentative subdivision maps for residential development and multiple family development shall be designed to reflect and consider natural features, visibility of structures, and the relationship of the project to surrounding uses, and to maintain the character and visual quality of the area.*

3.2.1b *The professional office development, recreational facilities, and multiple family development shall be designed to minimize the visual impact of parking areas on public roadways.*

3.2.1c *New development in scenic areas (e.g., river canyons, watersheds, scenic highway corridors, community gateways, ridgelines and steep slopes) outside the commercial core shall be planned in a manner which employs design, construction, and maintenance techniques that:*

- *a. Avoid locating structures along ridgelines and steep slopes such that they would be silhouetted from below or from a public road;*
- *b. Incorporate design and screening measures to minimize the visibility of structures and graded areas;*
- *c. Maintain the character and visual quality of the area.*
- *d. Utilize natural landforms and vegetation for screening structures, access roads, building foundations, and cut and fill slopes.*
- *e. Incorporate landscaping that avoids significant discontinuity in landscaping vegetation between developed areas and adjacent open space or undeveloped areas.*

3.2.1d *Roads and other public works projects shall incorporate aesthetic values, as well as utility, safety and economy.*

3.2.1e S*ignificant natural, open space and cultural resources shall be identified in advance of development and incorporated into site-specific development project design.*

3.2.1f *All residential development shall provide private and/or public open spaces.*

3.2.1g *The location and design of all proposed structures must relate to existing terrain and must preserve the natural features of the site to the maximum extent possible. Any proposed design must take into account grade changes, locations of trees and boulders, and orientation of the proposed improvements to sun, wind and views. The Forest Ranch project shall adhere to the following Architectural/Design Standards:*

a. *The design objective of every home should be to allow the natural setting to remain the dominant image. Buildings within this setting must fit quietly into the existing landscape. The goal is to create appealing and interesting structures that are subtle and complementary to the dominant beauty of the forest setting. The area of soil and vegetation disturbance on each homesite must be limited to that required for necessary construction, access and landscaping purposes. Except where required by access, there must be no disturbance in setbacks and areas that are otherwise designated to be left in a natural state. House designs must fit their sloping sites rather than the site made to fit an inappropriate design.*

b. *Tree, brush, and rock removal must be limited to that reasonably necessary for the construction of a home and its protection from fire. No clear cutting of trees within any building envelope will be permitted; however, it is understood that some selective pruning or removal of trees and shrubs will be necessary for the development of any homesite.*

c. *In many cases, the roof is the largest and most important visual element of a structure. The overall profile and articulation of the roof should be sufficiently irregular to break up anything that would otherwise appear too boxy or discordant with the landscape or neighboring structures. The roofs of all two-story homes should include single-story elements. For both one and two-story residences, the roof profile should be richly varied, including individual masses of sufficient size, in plan and elevation, to convey the desired result.*

d. *Exterior materials should generally be natural materials that blend and are compatible with the native landscape of the specific homesite. The predominant exterior materials shall consist of stone and wood. The allowable wood materials include shingles, beveled or tongue-and-groove board siding, logs, board-on-board or board and batten siding. This provision would not preclude the use of smooth T-111 siding with battens nailed to the exterior on 16-inch centers; however, the use of grooved T-111 siding is not permitted.*

e. *Color can be described in terms of three attributes, including hue (its basic color), value (lightness and darkness), and chroma (intensity). When proposing colors for the exterior materials for a home, keep in mind the following:*

- *Color is affected by architectural design. Planar surfaces will read lighter than those that involve a great deal of articulated shade and shadow.*
- *Color is affected by relationships. Colors must related to and be compatible with the natural landscape.*

- *Portions of buildings usually suggest special treatment, including the use of more than one color on a single structure. The combinations of these colors must be addressed in a skillful way to ensure quiet and complementary combinations are the results.*
- *As a general guideline, light reflectance values for field and trim colors shall range from a low of 15 to a high or 40.*
- *Where more than one color is approved on a single structure, all color changes must be made at an inside corner.*

f. Driveway access and garage location lend significant shape to the design and placement of the home. One of the greatest contributors to negative feelings about residential subdivisions is the often-present row of garage doors aligned along the street with oversized driveways leading to them. When planning a house in this area, the view of the garage doors from the street must be minimized.

g. When considered in site planning, solar conscious design can provide for energy efficiency in space heating by allowing for seasonal solar exposure/screening. Appropriate solar exposure can also help reduce the amount of snow removal necessary to access a site in winter. Areas of pavement that receive sunlight in winter often clear themselves after several cloudless days whereas north-facing and shadowed areas may retain snow for many consecutive days.

h. Refuse enclosures must be provided and must accommodate a minimum of two (2) covered 32-gallon plastic refuse containers on wheels. The doors must be designed to prevent the attempts of bears and other animals trying to infiltrate the trash area. Special attention to door thickness and construction, hinges, latches, and knobs will be required to prevent sabotage by scavenging animals. These refuse enclosures must be proximate to the street for ease of access by refuse collectors; however, they must also be architecturally compatible with the residence on the same parcel and screened from street view to the maximum degree possible.

i. Walls, screens, or fences may be allowed when they are proposed as a visual extension of residences or other residential accessory structures and when they delineate a yard area near a residence (or accessory structure). Such walls, screens and fences should use materials and finishes consistent with the design materials used on the residence. If fences are constructed along lot boundaries, such fences shall allow for the reasonable passage of wildlife. Chain-link fences are prohibited except where they are not visible from public roadways, trails, and adjoining residential or recreational uses.

j. In most cases driveway slopes are required to be less than 8% overall and may not exceed a 12% gradient at their steepest part. Additionally, for safety considerations, there must be provided a near-level (<2%) transition area of

at least 16 feet between slopes and garage doors and a near-level transition area of at least 8 feet between slopes and the edge of the pavement at the roadway.

k. The Specific Plan shall also include the following design considerations:

- *Separate design guidelines for the golf course and clubhouse facilities that reflect the forested, rural nature of the area;*
- *Pedestrian and alternative vehicular entrances to the historic downtown from the project;*
- *A circulation alternative that does not preclude a roadway connection from the project site to Yankee Jim's Road;*
- *Provisions for transit and park & ride facilities (including school bus stops);*
- *Street lighting and other outside lighting should incorporate "dark skies" principles;*
- *Gated communities shall be precluded; and*
- *Provisions for public play shall be incorporated into the golf course approvals.*

3.2.2a *Project design shall incorporate screening measures to minimize the visibility of structures and graded areas. Natural landforms and vegetation shall be utilized for screening structures, access roads, building foundations, and cut and fill slopes.*

3.2.2b *Land alterations for the project shall comply with the following guidelines:*

a. Limit cuts and fills;
b. Limit grading to the smallest practical area of land;
c. Limit land exposure to the shortest practical amount of time;
d. Replant graded areas with native or non-invasive exotic species to ensure establishment of plant cover before the next rainy season; and
e. Create grading contours that blend with the natural contours on site or with contours on property immediately adjacent to the area of development

3.2.2c *New roads, parking and utilities shall be designed to minimize visual impacts. Unless limited by geological or engineering constraints, utilities shall be installed underground, and roadways and parking areas shall be designed to fit the natural terrain.*

3.2.2d *The project shall comply with the "Forest Ranch Specific Plan Area Architectural/Design Standards*

3.2.2e *Future development proposals shall be submitted to the Foresthill Design Review Committee (Foresthill Forum) to ensure consistency with design standards and community concerns.*

3.2.3b *Outdoor security lighting on individual single family residences shall be restricted through the design review process.*

3.2.3c *The golf course driving range shall not be lighted.*

3.2.3d *A lighting plan shall be prepared and submitted to the County for approval in conjunction with permits for multi-family development, professional office development, and development of recreational facilities. The lighting plan shall comply with the guidelines provided by the International Dark Sky Association. Night lighting from the exterior of a building and the project's boundaries shall be limited to that necessary for security, safety, and identification. Night lighting shall also be screened from adjacent residential areas and not be directed in an upward manner or beyond the boundaries of the parcel on which the building is located. Alternatively, a Dark Sky Ordinance is adopted by the County by such time as application is made for a permit, the project shall comply with the ordinance.*

3.3.3e *New lighting shall be directed downward and shall not shine onto adjacent properties.*

COMMUNITY DEVELOPMENT

Population and Housing

3.3.1-3a *Each tentative subdivision map and multi-family housing project shall comply with the Placer County Inclusionary Housing Ordinance in effect at the time each project is proposed.*

3.3.1-3b *Alternatively, the developer shall submit for County approval a comprehensive inclusionary housing plan for the entire project that demonstrates compliance with the Placer County Inclusionary Housing Ordinance in effect at the time it is submitted.*

3.3.1-3c *The Specific Plan submitted for the project site shall specify the mechanism that will be implemented to require that 1,700 of the 2,213 units will be age-restricted.*

Public Services and Utilities

3.3.2-1 *Project developers shall be required to establish a special benefit assessment district or other funding mechanism to assure adequate funding for law enforcement and related services and operational costs, with funding responsibilities imposed on residential, office, commercial and recreational properties within the Forest Ranch project, including the costs for services required to satisfy General Plan standards now in existence or later amended. The funding mechanism shall be subject to the prior review and approval of Placer County, and shall be approved by the affected landowners prior to recordation of the first final subdivision map.*

3.3.2-2a *All structures larger than 2,500 square feet shall be sprinklered.*

3.3.2-2b *A fire station shall be provided on the project site with a design and location to be approved by the Foresthill Fire Protection District. Equipment and paid staff shall be provided for the fire station in accordance with the requirements of the Foresthill Fire Protection District. The fire station shall be dedicated to the Foresthill Fire Protection District, and construction and equipping of the station shall be completed prior to issuance of the first certificate of occupancy for the project site.*

3.3.2-2c *The project shall make a fair share contribution toward improvements to the existing Foresthill Fire Protection District Station #1 located in Foresthill. The fair share contribution shall be determined by the Foresthill Fire Protection District.*

3.3.2-2d *These requirements, including provision for ongoing funding for fire station staffing, shall be included in a fully executed agreement between the Foresthill Fire Protection District and the project applicant. The agreement shall be executed prior to approval of the first tentative subdivision map, conditional use permit or minor use permit for the project site.*

3.3.2-4a *The developer shall be required to develop and maintain 22 acres of private active recreation facilities and to either pay park dedication fees or provide and maintain 22 acres of developed public community recreation. In lieu meeting this standard, the project could explore other options as described in the Planned Development portion of the Zoning Ordinance (Section 17.54.100(D)3).*

3.3.2-4b *Trail classifications shall be shown on all project plans in accordance with the Placer County Trails Master Plan.*

3.3.2-4c *A County Service Area, Zone of Benefit under CSA #28 (the County-wide County Service Area), community services district, expansion of powers of the Foresthill P.U.D., master homeowners association, parks and recreation district, assessment district, or other entity for sustainable park maintenance shall be formed or completed for the project site prior to recordation of the first final subdivision map. A park maintenance tax or assessment with a provision for increases indexed to the Consumer Price Index shall be approved by the landowners (voters) of the project site, to be developed prior to recordation of the first final subdivision map.*

3.3.2-6 *The Specific Plan shall propose a method for provision of adequate road maintenance and snow removal to serve the project area. This shall include adequate funding for maintenance and snow removal. Prior to recordation of any map or acceptance by the County of any improvements within the project area, a County Service Area, Zone of Benefit under CSA #28 (the County-wide County Service Area), community services district, expansion of powers of the Foresthill P.U.D., assessment district, or other mechanism acceptable to the County to ensure road maintenance and snow removal shall be formed or completed.*

3.3.2-8a *A community services district, expansion of powers of Foresthill P.U.D., or other public entity for sustainable wastewater treatment facility maintenance and operation shall be formed or completed prior to recordation of the first final subdivision map for a development project with a density higher than one dwelling units per 2.3 acres.*

3.3.2-8b *The recreational vehicle park, multiple family dwellings, single family dwellings at a density greater than 1 unit per 2.3 acres, and restaurants shall be connected to the wastewater treatment facility as a condition of approval of a conditional use permit and/or tentative subdivision map (when applicable) and prior to issuance of a certificate of occupancy.*

3.3.2-8c *The developer shall obtain Waste Discharge Requirements (WDRs) from the Regional Water Quality Control Board for the on-site wastewater treatment facility, which will assure that the size, treatment process, and discharge of treated effluent are adequate and in compliance with local, State and federal standards. If the size or other characteristics of the golf course are inadequate for spray irrigation of treated effluent, adequate area shall be provided on the site in accordance with WDRs.*

3.3.2-8d *Construction of sewer lines, reclaimed water lines, reservoirs, and the wastewater treatment facility shall be in compliance with Mitigation Measures 3.4.2-1a-e and 3.4.1-1a.*

3.3.2-9a *The portion of the project site located outside Foresthill P.U.D. boundaries shall be annexed to the District prior to recordation of the first final subdivision map.*

3.3.2-9b *A "will serve" letter shall be obtained from the Foresthill P.U.D. prior to recordation of the first final subdivision map or other County approval.*

3.3.2-9c *An emergency water storage tank(s) shall be constructed onsite by project developers and maintained by Foresthill P.U.D. The location(s) and volume of water to be stored shall be determined by Foresthill P.U.D. and the Foresthill Fire Protection District.*

3.3.2-9d *Fire hydrants shall be installed and fire flow shall be provided in accordance with the requirements of the Foresthill PUD and the Foresthill Fire Protection District.*

3.3.2-9e *Construction of water lines and the emergency water storage tank(s) shall be in compliance with Mitigation Measure 3.4.1-1a-b.*

3.3.2-9f *The number of units allowed on the project site shall be reduced to 533, the number of units anticipated on the site under the draft Foresthill Divide Community Plan.*

3.3.2-10a *The developer shall submit a master drainage plan for the project site for review and approval by the Placer County Public Works Department and the Placer County Flood Control and Water Conservation District with any Specific Plan or entitlement request submitted for property within the project site. The master drainage plan shall*

address design of any proposed drainage systems as well as drainage flowing into, through, and originating within the project area. The plan shall meet the requirements of the Placer County Land Development and Stormwater Management Manuals in force at the time of plan submittal. The plan shall address phasing of drainage system improvements. Subsequent development within the project site shall be consistent with the approved master drainage plan and any approved revisions thereto. A preliminary master drainage plan shall be submitted as part of the environmental review process for any Specific Plan or the first entitlement request submitted for property within the project site.

3.3.2-10b *The Specific Plan shall propose a method to ensure sustainable storm drainage system operation and maintenance and funding. Prior to recordation of any map or acceptance by the County of any improvements within the project area, a County Service Area, Zone of Benefit under CSA #28, community services district, expansion of powers of Foresthill P.U.D., or other mechanism acceptable to the County to ensure adequate storm drainage operations shall be formed or completed.*

NATURAL RESOURCES

Biological Resources

3.4.1-1a *A preliminary geotechnical engineering investigation prepared by a licensed civil engineer and consistent with the requirements of the Placer County Grading, Erosion, and Sediment Control Ordinance shall be submitted with the Specific Plan. More detailed geotechnical engineering investigations prepared by a licensed civil engineer and consistent with the requirements of the Placer County Grading, Erosion and Sediment Control Ordinance shall be submitted with each Tentative Subdivision Map application within the project area. Other entitlement requests may be required to prepare project specific geotechnical investigations if findings in the Specific Plan preliminary engineering investigation indicates a need.*

3.4.1-2 *Prior to approval of a Specific Plan or the first requested entitlement, a grading plan shall be prepared for the project site that complies with the requirements of Article 15.48 of the Placer County Code, Grading, Erosion and Sediment Control Ordinance. Grading plans shall:*

1. *Incorporate sound soil conservation practices and minimize land alterations.*
2. *Limit cuts and fills and balance cut and fill on-site.*
3. *Limit grading to the smallest practical area of land*
4. *Limit land exposure to the shortest practical amount of time*
5. *Replant graded areas with native or non-invasive exotic species to ensure establishment of plant cover before the next rainy season*
6. *Create grading contours that blend with the natural contours on-site or with contours on property immediately adjacent to the area of development.*
7. *Roadways, parking areas, trails and paths shall be designed to fit the natural terrain and minimize erosion.*

8. *Development near or on portions of hillsides shall not cause or worsen natural hazards such as erosion, sedimentation, or water quality concerns.*
9. *Erosion and sediment control measures including temporary vegetation (native or non-invasive exotic species) sufficient to stabilize disturbed areas*
10. *Incorporate the use of natural stormwater drainage systems to preserve and enhance natural features whenever possible.*
11. *Limit grading activities in the rainy season to the extent possible.*
12. *Indicate that proper control of erosion, sedimentation, siltation and other pollutants will be implemented per NPDES permit requirements and County standards.*
13. *Use landscaping, revegetation, the use of rice straw or other weed-free vegetative material for erosion control measures, or similar stabilization techniques.*

3.4.1-12c *Prior to issuance of a grading permit, a Streambed Alteration Agreement shall be obtained from CDFG, pursuant to Section 1600 of the California Fish and Game Code, for each stream crossing and any other activities affecting the bed, bank, or associated riparian vegetation of the stream. If required, the project applicant shall coordinate with CDFG in developing appropriate mitigation, and shall abide by the conditions of any executed permits.*

3.4.1-13a *As provided in Mitigation Measure 3.4.1-12c, prior to issuance of a grading permit, a Streambed Alteration Agreement shall be obtained from CDFG, pursuant to Section 1600 of the California Fish and Game Code, for each stream crossing and any other activities affecting the bed, bank, or associated riparian vegetation of a stream.*

3.4.1-13b *Refer to Mitigation Measures 3.4.2-2f for additional mitigation related to riparian areas.*

Hydrology and Water Quality

3.4.2-1a *All onsite wastewater treatment and disposal facilities (whether septic tank/leachfield or engineered alternative systems) proposed to be installed on individual lots shall comply with Placer County's Ordinance Governing Individual On-Site Sewage Disposal Systems, including compliance with the minimum locational and operational criteria described therein.*

3.4.2-1b *Prior to approval of tentative maps or improvement plans (whichever comes first) involving lots proposed for onsite wastewater disposal systems, a site evaluation shall be performed for each proposed lot in accordance with Placer County's Ordinance Governing Individual On-Site Sewage Disposal Systems. Proposed lots shall contain sufficient area to ensure compliance with Placer County and Regional Water Quality Control Board standards and criteria for treatment and disposal facilities, including sufficient replacement area in the event of system failure. On-site sewage treatment and disposal will only be allowed on parcels where all current regulations can be met and where parcels have the area, soils, and other characteristics that permit such*

disposal facilities without threatening surface or groundwater quality or posing any other health hazards.

3.4.2-1c *The Specific Plan shall clearly show the location of all watercourses and existing springs. No onsite wastewater disposal system or replacement area shall be located within 300 feet of such features.*

3.4.2-1d *A preliminary design of all proposed community wastewater treatment and disposal facilities shall be prepared and provided to Placer County prior to consideration of the Specific Plan. Tentative maps shall not be approved for the project unless the proposed facilities are deemed by the regulatory agencies to be adequate to prevent potential water quality degradation from facilities operation at buildout of the proposed project. Subsequent environmental analysis of proposed facilities shall be undertaken, to evaluate the impact of any proposed treatment and disposal facilities.*

3.4.2-1e *The proposed recreational vehicle park shall be connected to the proposed community wastewater treatment and disposal facilities.*

3.4.2-2a *Refer to Mitigation Measure 3.4.1-2 related to the requirements of a grading plan.*

3.4.2-2c *Design of the project shall ensure that runoff is collected and conveyed into an appropriate collection system designed for the project site to receive the runoff, minimize erosion, and convey the runoff to storm water quality treatment facilities (BMP's) and ultimately off-site. Points of concentrated runoff discharge shall be protected with energy dissipating devices as deemed appropriate. All drainage system components shall be designed in accordance with the Placer County Flood Control and Water Conservation District Storm Water Management Manual and the Placer County Land Development Manual. Environmental review for subsequent development shall identify appropriate BMP's for site specific conditions. BMP's selected shall be in accordance with the California Stormwater Quality Association "Stormwater Best Management Practice Handbook," or other appropriate criteria as determined by the Development Review Committee.*

3.4.2-2d *A requirement of recordation of final subdivision maps or issuance of permits for construction pursuant to an approved conditional use permit or minor use permit shall be the preparation of a plan for use of BMPs to control long-term water quality degradation from urban runoff. Prior to any project development said plan shall obtain the approval of Placer County.*

The BMP Plan shall indicate that proper control of pollutants will be implemented per NPDES permit requirements and County standards. The plan for use of BMPs shall also include specific measures for parking lot or roadway improvement projects to include a parking lot sweeping program and periodic storm drain inlet clearing. Parking lot sweeping shall occur on a monthly basis, and storm drain inlet clearing shall occur semi-annually. The plan shall also include the installation of structural BMP's in the proposed parking lots for removing pollutants of concerns from the

runoff in these areas. The project proponent shall develop and present to Placer County a strategy to ensure the long-term implementation of the plan. Environmental review for subsequent development shall identify appropriate BMP's for site specific conditions. BMP's selected shall be in accordance with the California Stormwater Quality Association "Stormwater Best Management Practice Handbook," or other appropriate criteria as determined by the Design Review Committee.

3.4.2-2e *Project design that minimizes drainage concentrations and impervious coverage and maintains natural site drainage conditions, to the extent feasible, shall be incorporated in future project designs.*

3.4.2-2f *The Specific Plan shall specify sensitive habitat buffers that shall be measured as follows: 100 feet from the centerline of perennial streams, 50 feet from centerline of intermittent streams, and 50 feet from the edge of sensitive habitats to be protected. Some exceptions may be made if reasonable use of the property would otherwise be denied, the location is necessary to avoid or mitigate hazards to the public, the location is necessary for repair or construction of infrastructure where there is no feasible alternative. If encroachment into a riparian area is proposed, the following criteria shall be implemented in descending order of desirability:*

- *Avoid the disturbance of riparian vegetation;*
- *Replace riparian vegetation (on-site, in-kind);*
- *Restore another section of creek (in-kind); and/or*
- *Pay a mitigation fee for restoration elsewhere in the Plan area.*

3.4.2-2g *Subsequent applications for Tentative Subdivision maps shall identify the location of protected creek corridors and creek setback areas through the use of easements or dedications. These areas shall be designated as open space.*

3.4.2-2h *Design, construction, and maintenance techniques shall ensure development near a creek will not cause or worsen natural hazards (such as erosion, sedimentation, flooding, or pollution) and will include erosion and sediment control practices such as: 1) turbidity screens and other management practices, which shall be used as necessary to minimize siltation, sedimentation, and erosion, and shall be left in place until disturbed areas are stabilized with permanent vegetation that will prevent the transport of sediment off site; and 2) temporary vegetation sufficient to stabilize disturbed areas.*

3.4.2-2i *The Specific Plan shall include mechanisms that provide for the long-term creek corridor maintenance by specifying a guaranteed financial commitment to the County which accounts for all anticipated maintenance activities.*

3.4.2-2j *The Master Drainage plan shall include the use of natural stormwater drainage systems to preserve and enhance natural features and include Best Management Practices (BMP's) including but not limited to artificial wetlands, grassy swales, infiltration/sedimentation basins, riparian setbacks.*

3.4.2-2k *New development shall obtain from the State Water Resources Control Board a General Construction Activity Stormwater Permit under the National Pollutant Discharge Elimination System (NPDES) and comply with all requirements of the permit to minimize pollution of stormwater discharges during construction.*

3.4.2-3a *All drainage-related infrastructure shall be designed in accordance with the standards contained in the Placer County Flood Control and Water Conservation District's Stormwater Management Manual. All new development shall be planned and designed so that no damage occurs to structures or improvements during the 100-year event and no inundation of private property utilized for human habitation or wastewater disposal facilities occurs during the 10-year event. The Master Drainage Plan to be provided with the Specific Plan shall identify all 100 year flood plains within the project site and designate these areas for open space uses. Plans identifying areas susceptible to 100-year and 10-year events shall be presented to the Placer County Flood Control and Water Conservation District prior to consideration by the County of the first tentative map, conditional use permit or minor use permit.*

3.4.2-3b *Development within the project area shall comply with the requirements of the Placer County Flood Damage Prevention Regulations (Article 15.52, Placer County Code).*

3.4.2-3c *Flood control mechanisms shall be designed to utilize natural or non-structural flood control facilities, including off-stream flood control basins, to preserve and enhance creek corridors. Flood control structures, facilities, and improvements shall be designed to conserve resources, incorporate and preserve scenic values, and incorporate opportunities for recreation where appropriate.*

3.4.2-4 *The developer shall submit a master drainage plan for the project site for review and approval by the Placer County Public Works Department and the Placer County Flood Control and Water Conservation District with the Specific Plan or subsequent entitlement request submitted for the project site. The master drainage plan shall be designed to create no net increase in peak flows from any individual identified watershed (Figure 3.4-4c) and shall meet all of the requirements of the Placer County Land Development Manual and Stormwater Manual in force at the time of plan submittal. The master drainage plan shall address phasing tied to individual subdivision maps, conditional use permits, and minor use permits, subject to approval by the Public Works Department and the District. Subsequent development within the project site shall be consistent with the approved master drainage plan. If detention/retention facilities are identified as necessary, these shall be designed in accordance with the Master Drainage Plan and the Placer County Flood Control and Water Conservation District Storm Water Management Manual.*

Air Quality

3.4.4-1a *The applicant shall require construction contractors to submit to the District and receive approval of a Construction Emission/Dust Control Plan prior to groundbreaking. At a minimum, this plan shall include the following measures:*

a. Water exposed earth surfaces as necessary to eliminate visible dust emissions (at least one water truck shall be available for every three pieces of earthmoving equipment);

b. Suspend grading operations when fugitive dusts exceed <u>District Rule 228 Fugitive Dust limitations</u>;

c. Pave, use gravel cover, or spray a dust control agent on all haul roads;

d. Reduce speeds on unpaved roads to 15 mph or lower (this speed shall be posted);

e. Clean earthmoving construction equipment with water once daily, and clean all haul trucks leaving the site;

f. Cover all trucks hauling soil, sand, and other loose materials to ensure that all trucks hauling such materials maintain at least two feet of freeboard;

g. Institute measures to reduce wind erosion when site preparation is completed;

h. Install sandbags or other erosion control measures to prevent silt runoff onto public roadways;

i. Spread soil binders on unpaved roads and employee/equipment parking area;

j. Wet broom or wash streets if silt is carried over to adjacent public thoroughfares;

k. Install wheel washers or wash all trucks and equipment leaving the site;

l. Provide paved or grass-covered areas for construction employee vehicle parking; and

m. Designate a person or persons to monitor the dust control program as approved by the PCAPCD, and to order increased watering, as necessary, to prevent the transport of dust offsite. This designee's duties shall include holiday and weekend periods when work may not be in progress.

For project components that would not be constructed/developed immediately following the mass-grading phase, the following dust control measures shall also be implemented:

n. Apply chemical soil stabilizers or commence reestablishment of ground cover to construction areas within 96 hours of completing grading activities;

o. Develop and implement a wind erosion monitoring program for areas which will remain inactive for extended periods; this program should at a minimum provide for weekly monitoring of inactive sites to assess the effectiveness of wind erosion controls.

p. No open burning of removed vegetation during infrastructure improvements. Vegetative material should be chipped or delivered to waste to energy facilities.

q. Operational water trucks shall be onsite at all times. Apply water to control dust as required per District Rule 228.

3.4.4-2 *The applicant will be required to comply with the statewide <u>Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, And Surface Mining Operations.</u> Prior to approval of a tentative map, an implementation plan to comply with this ATCM should be developed and approved.*

3.4.4-3a *Potential effects of air pollutant emissions to the study area shall be partially mitigated by:*

1. *Promoting low-emission energy use by requiring residential design features that accommodate and encourage use of alternative energy sources. The following measures shall be in future project design:*
   - *All new residential fireplaces shall have propane hookups installed and the conditions of approval and CC&R's for the project shall explicitly forbid the installation of any non-EPA Phase 2 certified wood burning devices or masonry fireplaces within the single-family residences. Wood-burning or Pellet appliances shall not be permitted in multi-family developments. Only propane fired, fireplace appliances are permitted. The maximum particulate matter emission potential for each residence shall not exceed 7.5 grams per hour.*
   - *All new residences shall have electrical outlets at the front and back for electrical yard equipment installed*
   - *All new residences shall have low-NOx hot water heaters per PCAPCD Rule 246 installed*

2. *Promote passive solar building design and landscaping conducive to passive solar energy use, as applicable in the forested areas of the project site (i.e., building orientation in a south to southeast direction where feasible, encouraging planting of deciduous trees on western sides of structures, landscaping with drought-resistant species, and including groundcovers rather than pavement to reduce heat reflection).*

3. *Implementation of the following measures:*
   - *Incorporate solar heaters in residences as feasible;*
   - *Include high-efficiency heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units; and*
   - *Include energy-efficient window glazings, wall insulation, and efficient ventilation methods on all new residential units*
   - *The project CC&R's shall prohibit gasoline-powered golf carts onsite. The project shall purchase the lowest emission maintenance vehicles and equipment commercially available for the intended application at the time of purchase and/or replacement. The CC&R's for this project shall include this requirement.*
   - *The applicant shall provide a plan for on road use of electric golf carts/neighborhood electric vehicles..*
   - *The applicant shall provide equestrian, bicycle and pedestrian trails.*
   - *HVAC units shall be equipped with PremAir (or other manufacturer) catalyst system if available and economically feasible at the time building permits are issued. The PremAir catalyst can convert up to 70% of ground level ozone that passes over the condenser coils into oxygen. The PremAir system is considered feasible if the additional cost is less than 10 percent of the base HVAC unit.*

4. In order to minimize "heat island" effects, require the developer to:

- *Require the use of high-albedo (low-absorptive) coatings on all roofs and other building surfaces*
- *Require businesses and residents to plant trees to shade buildings primarily on the west and south sides of the buildings. Use of deciduous trees (to allow solar gain during the winter) and direct shading of air conditioning systems shall be included, as applicable in the forested areas of the project site*
- *Require businesses to pave all parking areas with a substance with reflective attributes (albedo = 0.30 or better) similar to cement concrete*
- *All truck loading and unloading docks shall be equipped with one 110/208 volt power outlet for every two dock doors. Diesel trucks shall be prohibited from idling more than five minutes and must be required to connect to the 110/208 volt power to run any auxiliary equipment. Signage shall be provided.*

3.4.4-3b *Bicycle usage shall be promoted by requiring the following:*

- *All non-residential projects shall provide bicycle lockers and/or racks*
- *All non-residential projects with more than 10 employees per shift shall provide employee personal showers and locker facilities*
- *All apartment complexes or condominiums without garages shall provide Class I bicycle storage*

3.4.4-3c *Transit usage shall be promoted as provided in Mitigation Measure 3.6.7. Payment of project's fair share transit fee to extend service to this area shall be provided.*

3.4.4-3d *The project applicant shall implement an offsite mitigation program to offset the project's increase in Nitrogen Oxide, Reactive Organic Gas and Particulate Matter emissions. The applicant's offsite mitigation program must be approved by the Placer County Air Pollution Control District. In lieu of the applicant implementing their own offsite mitigation program, the applicant can choose to participate in the Placer County Air Pollution District Offsite Mitigation Program by applying an equivalent amount into the District program.*

3.4.4-4a *The specific design and location of all wastewater collection and treatment facilities, effluent storage ponds and land disposal areas shall be reviewed and approved by the Placer County Environmental Health Division prior to construction. Wastewater collection and treatment facilities shall be constructed with odor containment, ventilation and scrubbing systems so that odors cannot be detected beyond the plant boundary. Emergency storage ponds shall be equipped with aerators and washdown facilities to control odor emissions. The Environmental Health Division may require certain wastewater collection and treatment equipment and facilities to be covered, if determined necessary to assure optimum odor control.*

3.4.4-4c *At such time as an application is submitted for the equestrian center, conditions of approval shall be developed that address and control odors, including but not limited*

to a restriction on the maximum number of horses, specific design and location of facilities to reduce odor potential, and operating conditions for the regular maintenance of facilities and the removal of animal waste.

CULTURAL RESOURCES

3.5.1a *Prior to any project-related ground disturbance, an archaeological field survey shall be conducted by professional archaeologists of the affected area, incorporating a systematic mixed reconnaissance strategy. Work shall be conducted according to the guidelines established by the State of California, Office of Historic Preservation. Artifacts, features and sites encountered shall be formally recorded on State of California archaeological forms. Findings shall be presented in a final report and presented to the County summarizing the natural and cultural setting and detailing the prefield and field methods employed, survey results, potential heritage resource significance, project impacts, and proposed mitigation measures required to be implemented.*

3.5.1c *Archaeological investigations shall be conducted in consultation with the Foresthill Divide Historical Society and the Todd's Valley Miwok-Maidu Cultural Foundation.*

3.5.3a *Interpretive signs and panels, designation of natural-cultural areas, and the establishment of heritage demonstration sites shall be incorporated into plans for the Forest Ranch project.*

3.5.3b *Project proponents shall enter an agreement with the Todd Valley Miwok-Maidu Cultural Foundation to provide funding for support of Foundation work directed at preserving and interpreting cultural resource sites on the Foresthill Divide. Such funding shall be based on the identification of a specific project that bears a relationship to the Forest Ranch area. Any agreement shall be subject to review and approval by the County of Placer.*

TRANSPORTATION

3.6.1a *"Fair Share" traffic mitigation fees shall be paid in order to provide sufficient funding for roadway improvements necessary to maintain the Level of Service "C" on Foresthill roadways.*

3.6.1b *A center two-way left turn on Foresthill Road from the Todd's Valley area through the downtown area is recommended as it will improve traffic flow during peak periods. This center two way left turn will improve safety by providing left turning motorists a refuge area to wait for the next available gap out of the through traffic flow on Foresthill Road, thus allowing through traffic to continue its progression. Installation of this improvement may also result in less rear end accidents that could be avoided by providing left turning motorists a refuge area out of the thru travel lane.*

3.6.2 *Fair share payments shall be made toward the installation of traffic signals or other improvements when signal warrants are met. If traffic signals become necessary on Foresthill Road, utilize control mechanisms that minimize the delay of through traffic, especially during non-commute hours.*

3.6.3a *"Fair Share" traffic mitigation fees shall be paid in order to provide sufficient funding for roadway improvements necessary to maintain the Level of Service "C" on Foresthill roadways or the project reduced in size in order to maintain Level of Service "C."*

3.6.3b *The Specific Plan shall identify a mechanism to require periodic review of the amount of off-site retail and office uses that are being constructed. In the event that the off-site development anticipated in this analysis does not occur, the Specific Plan shall be modified to include phasing of future development on the site that restricts the development of residential units, linking this development to the corresponding development of additional commercial/retail and/or to include the payment of additional mitigation fees to cover the costs of additional transportation improvements.*

3.6.4a *Fair share payments shall be made toward the installation of traffic signals or other improvements when signal warrants are met. If traffic signals become necessary on Foresthill Road, utilize control mechanisms that minimize the delay of through traffic, especially during non-commute hours.*

3.6.4b *The Specific Plan shall identify a mechanism to require periodic review of the amount of off-site retail and office uses that is being constructed. In the event that the off-site development anticipated in this analysis does not occur ,the Specific Plan shall be modified to include phasing of future development on the site that restricts the development of residential units, linking this development to the corresponding development of additional commercial/retail and/or to include the payment of additional mitigation fees to cover the costs of additional transportation improvements.*

3.6.7 *One or more sheltered transit stops shall be provided within the project site as a condition of approval of residential development of 100 units or more. The Placer County Public Works Department shall determine the appropriate number and location of sheltered transit stops.*

3.6.8 *The project shall provide a public carpool parking facility. Such a lot shall be centrally located to be serviced by transit. This facility shall also be utilized for overflow parking and staging areas for community events. This facility shall be provided as a condition of approval of residential development of 100 units or more. The appropriate location and design of the facility shall be determined by the Placer County Public Works Department.*

3.6.9a *The Specific Plan shall delineate bikeways and trails on the project site. The project shall contribute its fair share to implement the policies in the draft Foresthill Divide Community Plan.*

3.6.9b *Separate easements within the project site shall be shown on any proposed tentative maps and shall include space for a five-foot multi-purpose roadside trail, or equivalent off-road trail network to enable children, equestrians, bicyclists, and pedestrians to safely circulate throughout the development.*

NOISE

3.7.1a *The extent by which various land uses will be affected by increases in traffic noise levels associated with the development of the region will vary depending on the proximity of those uses to the roadways in question and the individual sensitivities of those uses to noise.*

Because the increase in traffic noise levels along Foresthill Road would affect existing noise sensitive land uses (primarily residences) which are already located adjacent to Foresthill Road, the only way to practically reduce noise levels at those locations would be to construct noise barriers between the roadway and the residences, or to repave the roadways in question with noise-reducing asphalt. The construction of solid noise barriers could reduce traffic noise levels at the nearest noise sensitive receptors to the roadways. However, barriers may not be feasible, as access to the residences is from the roadway. The use of alternative roadway pavements such as rubberized asphalt or open gap asphalt have been shown to reduce overall traffic noise levels by approximately 3 dB to 5 dB, and repaving of the affected roadway segments shall be required prior to issuance of the first certificate of occupancy.

3.7.1b *A detailed analysis of traffic noise levels shall be required for tentative subdivision maps for proposed residences adjacent to Foresthill Road and Yankee Jim's Road. The noise analysis will be required to incorporate mitigation measures which would reduce noise impacts at proposed residences to a less than significant level.*

HEALTH AND SAFETY

3.8.1a *The wastewater treatment plant shall be designed to incorporate redundancy of treatment systems.*

3.8.1b *Chlorine gas shall not be used for disinfection. Alternative processes such as use of sodium hypochlorite or ultraviolet radiation shall be used.*

3.8.1c *Emergency storage pond(s) shall be incorporated in the wastewater treatment plant design to allow for emergency storage of untreated effluent.*

3.8.1d *A diesel standby generator shall be provided for use in the event of a power failure.*

3.8.2 *A Phase I Environmental Site Assessment shall be conducted for the project site and submitted prior to approval of the first tentative subdivision map, conditional use permit or minor use permit. If recommended by the Phase I, a Phase II Environmental Site Assessment shall be prepared. Should any contamination be discovered, remediation shall be undertaken and completed in accordance with federal, State, and local regulations prior to any development of the project site.*

3.8.3c *Conditions of approval for tentative subdivision maps, conditional use permits and minor use permits shall include requirements for a fire safe community, defensible space fire-resistant vegetation, cleared fire breaks and fuel breaks, and a long-term comprehensive fuel management program.*

3.8.3e *A County Service Area, Zone of Benefit under CSA #28, community services district, expansion of powers of the Foresthill PUD, assessment district, or other entity for sustainable fuel break and fire access road maintenance shall be formed or completed prior to recordation of the first final subdivision map. A fuel break maintenance tax or assessment with a provision for increases indexed to the Consumer Price Index shall be approved by the landowners (voters) of the project site, to be developed prior to recordation of the first final subdivision map.*

3.8.4c *Drainage plans for the project site shall direct runoff and drainage away from unstable slopes.*

3.8.4g *Erosion and ground instability mitigation measures shall include conformance to the Uniform Building Code and Placer County's Grading, Erosion and Sediment Control Ordinance. The required designs shall include methods to control soil erosion and ground instability. Measures to control soil erosion and mitigate potential differential settlement and construction related ground instability impacts include, but are not limited to:*

1. *Prohibit the placement of habitable structures or individual sewage disposal systems on or in critically expansive soils.*

2. *In landslide hazard areas, prohibit avoidable alteration of land in a manner that could increase the hazard, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes.*

3. *Limit development in areas of steep (in excess of 30%) or unstable slopes, or slope breaks to minimize hazards caused by landslides, liquefaction, construction undercutting or vegetation loss.*

4. *Septic leachfields and drainage plans shall direct runoff and drainage away from steep and/or unstable slopes.*

5. *A California licensed Civil Engineer shall prepare and submit to the Department of Public Works a grading plan and erosion control plan (winterization/ground instability plan) for new development projects prior to any environmental review determination.*

3.8.5b *All known mine features for each project area shall be mapped or described and disclosed at the time of submittal of each tentative subdivision map, conditional use permit or minor use permit.*

3.8.5c *The Specific Plan shall include a map identifying past mining activity sites and shall include specific site management strategies to address issues related to abandoned mines including safety and the potential for groundwater contamination.*

6.2 PROJECT SPECIFIC MITIGATION REPORTING PLAN

A mitigation reporting plan is required when the standard mitigation monitoring plan (Section 6.1 above) does not address the required mitigation monitoring. This occurs when on-going monitoring of required mitigation measures extends beyond the County's permitting process. The following table contains the required components of the specific reporting plan and describes those mitigation measures that will require ongoing monitoring to insure implementation.

Table 6-1
Mitigation Measures Requiring Ongoing Monitoring

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
3.2 Aesthetics							
3.2.3a	Outdoor security lighting at recreational facilities, professional offices, and multi-family residences shall be controlled by timers.	Applicant	Building Department	Prior to Issuance of Certificate of Occupancy	Semi-annual basis	Lights scheduled to come on at dusk and turn off at dawn	Applicant
3.3 Community Development							
3.3.2 Public Services & Utilities							
3.3.2-3a	The County shall require that all new residents of the Forest Ranch project subscribe to garbage collection service.	Applicant	Environmental Health	Prior to approval of a tentative subdivision map	Once during review of tentative subdivision map	Curbside garbage collection	Applicant
3.3.2-3b	Contractors shall be required to provide on-site systems for reducing construction debris that divert at least 50% of debris from the MRF and Landfill.	Applicant	Environmental Health	Prior to approval of improvements plans	Weekly during construction	Diversion of at least 50% of debris	Applicant
3.3.2-3c	Prior to construction, a fair share fee shall be paid in order to assist in funding improvements to the transfer station that may consist of one or more of the following: • Widening the access road • Expanding the elevated asphalt	Applicant	Environmental Health	Prior to construction	Once prior to construction	Funding obtained to make improvements to transfer station	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	pad • Providing additional paved area to increase recycling capabilities • Adding an additional transport trailer						
3.4 Natural Resources							
3.4.1 Biological Resources							
3.4.1-1b	Erosion and ground instability mitigation measures shall include conformance to the Uniform Building Code and Placer County's Grading, Erosion and Sediment Control Ordinance. The required designs shall include methods to control soil erosion and ground instability. Measures to control soil erosion and mitigate potential differential settlement and construction related ground instability impacts include, but are not limited to: 1. Prohibit the placement of habitable structures or individual sewage disposal systems on or in critically expansive soils.	Applicant	Dept. of Public Works/Dept. of Environmental Health	Prior to approval of improvement plans Prior to issuance of septic permits for individual sewage systems.	Daily during grading activities, weekly during construction.	Civil Engineer prepares the plan BMP's are utilized to address source reduction and sediment capture and retention. Soil slopes no steeper than 2:1 (horizontal to vertical) unless authorized. Collection systems designed to convey water away from the project site.	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	2. In landslide hazard areas, prohibit avoidable alteration of land in a manner that could increase the hazard, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes. 3. Limit development in areas of steep (in excess of 30%) or unstable slopes, or slope breaks to minimize hazards caused by landslides, liquefaction, construction undercutting or vegetation loss. 4. Septic leachfields and drainage plans shall direct runoff and drainage away from steep and/or unstable slopes. 5. A California licensed Civil Engineer shall prepare and submit to the Department of Public Works a grading plan						

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	and erosion control plan (winterization/ground instability plan) for new development projects prior to any environmental review determination.						
3.4.1-6a	A focused rare plant survey for Brandegee's clarkia shall be conducted by a qualified biologist during the blooming season (May-July) to determine the presence/absence of this species on the site within the development area only. If this species is not found onsite, Mitigation Measure 3.4.1-6b is not required.	Applicant	Planning Department	Prior to approval of improvement plans	Once per improvement plan submitted	Brandegee's clarkia is preserved and incorporated into the project design or compensation approved by CDFG is implemented.	Applicant
3.4.1-6b	If the species is found in the development area, each population shall be mapped, and technical assistance from CNPS and the appropriate state or federal agencies shall be required. To the maximum extent possible, plant populations shall be preserved and incorporated into the project design. However, if these areas cannot be avoided, offsite land supporting known populations of	Applicant	Planning Department	Prior to construction	Weekly during construction on-site for avoidance Semi-annual inspections of any off-site mitigation areas with reports to the Planning Department	Brandegee's clarkia is avoided through project design or off-site mitigation is suitable and successful in establishing population.	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	the species shall be purchased and incorporated into an ecological preserve or conservation easement. If no suitable offsite land supporting the species can be located, the populations within the project site shall be preserved. Offsite mitigation shall occur at a minimum ratio of 1:1 (one plant preserved for each plant impacted). CNPS shall be consulted to evaluate the suitability for transplanting impacted species to suitable habitats within the established offsite preserve or conservation easement. A detailed preserve/ conservation easement management plan shall be developed in consultation with the appropriate regulatory agencies that includes species, habitat, and preserve/easement management strategies.						
3.4.1-7a	A focused survey for elderberry shrubs shall be conducted by a qualified biologist to determine the presence/absence of the valley elderberry longhorn beetle on the	Applicant	Planning Department	Prior to approval of improvement plans	Once per improvement plan submitted	Elderberry shrubs are preserved and incorporated into the project design or compensation	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	project site within the development area only. If no elderberry shrubs are identified onsite, Mitigation Measure 3.4.1-7b is not required.					approved by CDFG is implemented	
3.4.1-7b	If elderberry shrubs are identified within the development area, consultation with USFWS shall be required. Ideally, the project shall avoid removal or indirect impacts to elderberry shrubs. The USFWS typically requires a 25-foot setback from the outer dripline edge of each shrub. If the shrubs cannot be avoided, a mitigation plan shall be implemented which must include one of more of the following: 1. Obtaining credits at an approved mitigation bank; or 2. Implementation of an onsite mitigation and monitoring plan that includes transplantation of the shrub(s) and planting of elderberry seedlings.	Applicant	Planning Department	Prior to construction	Weekly during construction on-site for avoidance Semi-annual inspections of any on-site mitigation areas with reports to the Planning Department	Elderberry shrubs are protected through project design or mitigation bank credits are obtained. May develop an on-site mitigation plan	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
3.4.1-8	If construction is proposed during breeding season (March-September), a focused survey for raptor and other special-status active bird nests shall be conducted by a qualified biologist within 30 days prior to the beginning of construction activities on the project site. If no active nests are found, no further mitigation is required. If active nests are found, nest locations shall be mapped and distributed to Placer County. No construction activities shall take place within 500 feet of the nest until the young have fledged. Weekly monitoring reports summarizing nest activities shall be submitted to the County until the nest is determined to be inactive. Trees containing nests that must be removed as a result of project implementation shall be removed during the non-breeding season (September to February).	Applicant	Planning Department	Prior to construction	Weekly during construction on-site. Monitoring reports required weekly.	Impacts to nesting raptors are avoided	Applicant
3.4.1-9a	Focused surveys for Pacific fisher and pine marten shall be conducted within the development area only	Applicant	Planning Department	Prior to approval of improvement	Once per improvement plan submitted	Pacific fisher and pine marten habitat is identified	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	to determine if these species are breeding in this area. A qualified biologist shall conduct the surveys during the breeding season at the time of day each species is most active. Technical assistance from the CDFG and/or USFWS shall be requested to determine appropriate survey techniques. If no evidence of these species is found during field surveys, Mitigation Measure 3.4.1-9b is not required.			plans			
3.4.1-9b	If active Pacific fisher/pine marten dens are determined to occur on the site, technical assistance shall be requested from the appropriate regulatory agency to determine further actions and mitigation measures. At a minimum, construction activities shall not occur within 500 feet of an active den/nest.	Applicant	Planning Department	Prior to construction	Weekly during construction on-site	Pacific fisher/pine marten dens are protected No construction activity within 500 feet	Applicant
3.4.1-10a	Prior to construction, a focused survey shall be conducted to determine the presence/absence of roosting bats on the project site. Maternity roosts are generally occupied by mothers and young	Applicant	Planning Department	Prior to approval of improvement plans	Once, during review of plans	Presence/absence of roosting bats is identified	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	between May and August (Zeiner et al., 1990b). Mitigation Measure 3.4.1-10b is not required if there are no bat species utilizing the project site as roosting habitat.						
3.4.1-10b	If bats are determined to roost onsite, consultation with CDFG and/or USFWS shall be requested to determine measures to avoid disturbance during construction. If an active maternity roost is identified, at a minimum, no construction activities shall occur within 500 feet until the young are able to fly from the roost. If active day or night roosts are found onsite, measures shall be implemented to safely flush bats from the roosts prior to the onset of construction activities. Such measures may include removal of roosting site during the time of day the roost is unoccupied or the installation of one-way doors, allowing the bats to leave the roost but preventing them from re-entering.	Applicant	Planning Department	Prior to construction	Weekly during construction on-site	Protection of active maternity roost - No construction within 500 feet	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
3.4.1-11	The project applicant shall submit a tree survey map of oak trees proposed to be removed or disturbed during project development. Within these impact areas, an inventory of the location, number and health of oaks (greater than or equal to 6" in diameter) shall be conducted by a certified arborist. An oak tree mitigation plan shall then be prepared and approved by the County for oaks with a dbh of 6 inches or greater that are not dead, dying or a public safety hazard, as determined by the certified arborist.	Applicant	Planning Department	Prior to approval of a tentative subdivision map	Once, during review of tentative subdivision	Identification of oak trees proposed for removal.	Applicant
3.4.1-12a	Potentially impacted jurisdictional waters of the U.S. shall be delineated according to Corps methodology. The map shall be submitted to the Corps for verification and the appropriate Section 404 permit shall be acquired. Section 401 Water Quality certification or waiver must also be acquired.	Applicant	Planning Department	Prior to construction	Weekly during construction	Wetlands are protected	Applicant
3.4.1-12b	Any jurisdictional waters that would be lost or disturbed shall be	Applicant	Planning Department	Prior to construction	Weekly during construction	Wetlands are protected	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	replaced or rehabilitated on a "no net loss" basis in accordance with the Corps' mitigation guidelines. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods agreeable to the Corps.						
3.4.1-15	Prior to any ground-disturbing activities, a preconstruction paleontological resource impact assessment shall be conducted by a qualified professional paleontologist. The resource impact assessment shall be conducted in accordance with the Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines developed by the Society of Vertebrate Paleontology. If the assessment concludes that there is a high potential for disturbing significant fossils during project construction, a mitigation monitoring plan shall be prepared that includes monitoring by a qualified paleontologist to salvage any	Applicant	Planning Department	Prior to approval of grading plans	Weekly during construction	Paleontological resources are protected	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	fossils uncovered, identification of the salvaged fossils, determination of their significance, and placement of curated fossil specimens into a permanent public museum collection (such as the California state repository, the University of California Museum of Paleontology at Berkeley).						
3.4.2 Hydrology and Water Quality							
3.4.2-2b	Best Management Practices (BMPs) shall be applied during construction to minimize erosion and site runoff. Measures shall include: • Submission to the County Public Works Department of an erosion control plan consistent with the County's Grading, Erosion and Sediment Control Ordinance. The erosion control plan shall indicate that proper control of siltation, sedimentation and other pollutants will be implemented per NPDES permit requirements.	Applicant	Department of Public Works	Prior to approval of improvement plans	Weekly during construction or as required by DPW	BMP's are implemented to minimize erosion and site runoff	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding

	The plan shall include proposed BMPs to be applied during construction to reduce erosion and water quality degradation. BMPs shall be implemented throughout the construction process. The following BMPs shall be implemented as necessary:
	
	• Soil Stabilization Practices
	  • Straw Mulching
	  • Hydromulching
	  • Jute Netting
	  • Preservation of Existing Vegetation
	
	• Sediment Barriers
	  • Straw Roll Sediment Barriers
	  • Filter Fences
	  • Straw Roll/Bale Drop Inlet Sediment Barriers
	
	• Site Construction Practices
	  • Winterization
	  • Traffic Control
	• Runoff Control on						

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	Slopes/Streets • Diversion Dikes • Diversion Bales • Sediment Traps Drainage facilities shall be lined as necessary to prevent erosion of the onsite soils immediately following grading activities. In addition, cut slopes and drainage ways within native material shall be protected from direct exposure to water runoff immediately following grading activities. All collected runoff flow shall outlet on an apron of crushed rip-rap to dissipate the energy of the runoff. Cut and fill surfaces, particularly embankment slopes, shall be protected from sheet, rill and gully erosion by revegetation of exposed slopes. If revegetation cannot be completed and established prior to the onset of the rainy season, erosion control matting shall be stapled to the exposed slopes.						
3.4.4 Air Quality							

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
3.4.4-1b	The applicant shall require the contractor to reduce NOx and ROG emissions by complying with the construction vehicle air pollutant control strategies developed by the PCAPCD. The contractor shall include in the construction contracts the following requirements or measures shown to be equally effective: a. Construction equipment operators shall shut off equipment when not in use to avoid unnecessary idling. Generally, vehicle idling shall be kept below 10 minutes. b. Contractor's construction equipment shall be properly maintained and in good working condition. c. Construction equipment exhaust shall not exceed PCAPCD Rule 202 (Visible Emissions) limitations. d. The prime contractor	Applicant	Placer County Air Pollution Control District	Prior to approval of improvement plans	Daily during construction, one weekend day each week, submit weekly reports to the Air Pollution Control District	Reduction of NOx and ROG emissions	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	submit to the District a comprehensive inventory (i.e. make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower of greater) that will be used an aggregate of 40 or more hours for the construction project. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the District with the anticipated construction timeline including start date, and name and phone number of the project						

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	manager and on-site foreman. e. An enforcement plan shall be established to weekly evaluate project-related on-and-off- road heavy-duty vehicle engine emission opacities, using standards as defined in California Code of Regulations, Title 13, Sections 2180 - 2194. An Environmental Coordinator, CARB-certified to perform Visible Emissions Evaluations (VEE), shall routinely evaluate project related off-road and heavy-duty on-road equipment emissions for compliance with this requirement. Operators of vehicles and equipment found to exceed opacity limits will be notified and the equipment must be repaired within 72 hours. f. Construction contracts shall						

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	stipulate that the prime contractor shall provide a plan for approval by the District demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 30 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average. The District should be contacted for average fleet emission data. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.						

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	g. Construction contracts shall include language that prohibits the use of all heavy-duty off-road diesel equipment on forecast Spare the Air days.						
3.4.4-1c	Construction contractors shall be required to use low-VOC architectural coatings and asphalt in compliance with District Rules and Regulations. Contractors shall also be required to fuel stationary construction equipment with low-sulfur fuels, and use existing power sources (e.g., power poles) or clean fuel generators in place of temporary power generators whenever feasible.	Applicant	Building Department/ Air Pollution Control District	Prior to construction	Daily during construction, one weekend day each week, submit weekly reports to the Department of Public Works	Ensure that low-VOC coatings and asphalt are used The use of temporary generators is minimized	Applicant
3.4.4-1d	Construction contractors shall be required to provide management of construction traffic. The contractor shall include in the construction contracts the following requirements: a. Contractors shall provide temporary traffic control during all phases of construction activities to	Applicant	Department of Public Works	Prior to approval of improvement plans	Daily during construction	Traffic interference is minimized	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	improve traffic flow (i.e., flag person); b. Contractors shall configure construction parking to minimize traffic interference; c. Contractors shall schedule construction activities that affect traffic flow to off-peak hours (e.g., between 7:00 p.m. and 6:00 a.m. and between 10:00 a.m. and 3:00 p.m.); d. Contractors shall reroute construction traffic off congested streets; e. Contractors shall provide dedicated turn lanes for movement of construction equipment on- and off-site. f. Employ construction activity management techniques, such as: extending the construction period outside the ozone season of May through October; reducing the number of pieces used simultaneously; increasing the distance between emission sources; reducing or changing the hours						

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	of construction; and scheduling activity during off-peak hours. g. Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service.						
3.4.4-1e	Construction contracts shall require contractors to implement ridesharing programs for construction employees traveling to and from the site. This requirement shall be included as a note in all project construction plans. The trip reduction plan is to achieve 1.5 AVR for construction employees.	Applicant	Department of Public Works	Prior to approval of improvement plans	Daily during construction	Achieve 1.5 AVR for construction employees	Applicant
3.4.4-4b	The wastewater treatment facility and the equestrian center shall be subject to PCAPCD Nuisance Rule (Rule 205): A person shall not discharge from any source whatsoever such quantities of air contaminants or	Applicant	Air Pollution Control District	Prior to approval of improvement plans	Daily during construction, semi-annually thereafter.	Compliance with PCAPCD Nuisance Rule (Rule 205)	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which have a natural tendency to cause injury or damage to business or property.						
3.5 Cultural Resources							
3.5.1b	Prior to modification or destruction of an identified site, field-related mitigation activities shall be implemented in consultation with appropriate federal, state and local agencies and Native American groups. Mitigation measures can include project modification designed to protect and/or avoid a site. In lieu of project modification, a data recovery program can involve archival research, photo documentation and mapping, removal of a historic feature, collection of artifacts, recordation of features, test excavations, larger scale	Applicant	Planning Department	Prior to grading activities	Weekly during construction	Cultural and archaeological are protected or loss is compensated	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	excavations, or some combination of these tasks, consistent with Section 15126.4 of the CEQA Guidelines. Interpretive development of heritage remains enhances resource protection, public education and enjoyment and may also be used as mitigation.						
3.5.1d	To affirm the role of local Maidu and Miwok people as partners in the interpretation of their own archaeological past, a representative of local Native American interests shall be formally retained as a Native American consultant for future archaeological field surveys.	Applicant	Planning Department	Prior to grading activities	Weekly during construction	Cultural and archaeological are protected or loss is compensated	Applicant
3.5.2a	As part of an effort to sustain traditional cultural practices, portions of the project site that could be set aside for the harvest and management of traditional plants by Maidu and Miwok traditionalists and agreement for access shall be investigated. If indicated by the studies, future tentative maps shall include dedicated easements or other	Applicant	Planning Department	Prior approval of tentative subdivision maps	Once, during review of tentative subdivision map	Traditional cultural practices are sustained	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	mechanism to allow access. Additional work shall involve an ethnobotanical survey, combining the skills of a project ethnobotanist and a Native American plant specialist, to locate and document traditional plant populations and to identify attributes sought and cultured by Maidu and Miwok collectors. Maidu and Miwok involvement in project revegetation efforts shall also be solicited.						
3.5.2b	To insure the integrity of traditional plant resources and enhance their Native management, issues such as the application of herbicides, controlled burning, and dust abatement shall be considered in consultation with members of the Todd's Valley Miwok-Maidu Cultural Foundation.	Applicant	Planning Department	Prior to grading activities	Once, during preparation of grading plans	Maintain integrity of traditional plant resources	Applicant
3.7 Noise							
3.7.2	Construction activities shall be restricted to the daytime hours of operation, when possible. All equipment shall be fitted with factory equipped mufflers and in good working order.	Applicant	Planning Department and Department of Environmental Health	Prior to approval of improvement plans	Weekly during construction; submit weekly reports to the Planning Department	Construction activity is restricted to daytime Equipment has mufflers	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
3.7.3	All maintenance equipment shall be kept in good working order and fitted with mufflers. In addition, all future residents which purchase property adjacent to the proposed golf course shall sign a disclosure which fully identifies that noise levels associated with golf course maintenance will occur. The golf course operator shall schedule maintenance of those areas abutting residences in a sensitive manner.	Applicant	Planning Department and Department of Environmental Health	Prior to any construction activity	Weekly during construction; submit weekly reports to the Planning Department	Equipment is in good working order. Residents are aware of potential noise impacts	Applicant
3.7.4	To reduce adverse public reaction to nighttime generator noise, no generators shall be allowed to operate between the hours of 9:00 p.m. and 7:00 a.m. In addition, if the RV park is located within 500 feet of any existing or proposed residential uses, a detailed analysis of noise impacts shall be conducted when a detailed site plan for the RV park is available, and additional mitigation measures shall be implemented in	Applicant	Planning Department	Prior to approval of improvement plans	Weekly during construction; submit weekly reports to the Planning Department	Use of generators is restricted to specific times Minimize exposure of people in the RV park to noise sources	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	accordance with the recommendations of the acoustical analysis.						
3.7.5	Wastewater treatment plant pumping equipment which may operate during the nighttime hours shall not exceed an hourly average noise level of 40 dBA Leq at the project property line or at adjacent residential property lines. Routine testing of emergency generator(s) shall be conducted during daytime periods. Emergency generators shall not exceed an hourly average noise level of 50 dBA Leq at the project property line or at adjacent residential property lines.	Applicant	Planning Department/ Department of Environmental Health	Prior to operation of the wastewater treatment plan.	Weekly during operations; submit monthly reports to the Planning Department	Use of generators is restricted to specific times Minimize exposure of people to noise sources from the pumping equipment	Applicant
3.8 Health and Safety							
3.8.3a	Vegetation shall be modified around new structures to reduce radiant heat along fire escape routes.	Applicant	Foresthill Fire Protection District/ Planning Department	Prior to construction	Once, for each new building and inspection by Fire Department	Defensible space	Applicant
3.8.3b	The project applicants shall submit a fire safety plan that provides for (1) increased safety for emergency fire equipment and evacuating	Applicant	Foresthill Fire Protection District /Planning	Prior to approval of improvement plans	Once, during review of improvement plans	Defensible space/safe escape routes	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	residents and visitors; (2) a point of attack or defense from a wildfire; and (3) strategic siting of fuel breaks, fire breaks, and greenbelts.		Department				
3.8.3d	Fuel breaks shall be provided along the perimeter of the project site, and fire access roads shall be provided within the project site, at locations subject to the approval of the Foresthill Fire Protection District.	Applicant	Foresthill Fire Protection District /Planning Department	Prior to construction	Once, prior to construction	Provide fire protection routes	Applicant
3.8.4a	A preliminary geotechnical engineering investigation prepared by a licensed civil engineer and consistent with the requirements of the Placer County Grading, Erosion, and Sediment Control Ordinance shall be submitted with the Specific Plan. A more detailed geotechnical engineering investigation prepared by a licensed civil engineer and consistent with the requirements of the Placer County Grading, Erosion and Sediment Control Ordinance shall be submitted with each Tentative Subdivision Map application within the project area.	Applicant	Department of Public Works	Prior to approval of a tentative subdivision map, conditional use permits, or minor use permit	Daily during construction; weekly reports submitted	Building design to prevent landsliding	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	Other entitlement requests may be required to prepare project specific geotechnical investigations if findings in the Specific Plan preliminary engineering investigation indicates a need.						
3.8.4b	If landslide hazard areas are identified on the project site, avoidable alteration of land in a manner that could increase the hazard shall be prohibited, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes.	Applicant	Department of Public Works/Department of Environmental Health	Prior to approval of improvement plans	Daily during construction	Site design to prevent landsliding	Applicant
3.8.4d	The location and/or design of new buildings, facilities, and other development in areas subject to earthquake activity shall minimize exposure to danger from fault rupture or creep.	Applicant	Building Department/ Planning Department	Prior to approval of a building permit	Once during review of building permit application	Minimize exposure to fault rupture or creep	Applicant
3.8.4e	Any new structure proposed to be located in an area of high liquefaction potential shall be sited, designed, and constructed to	Applicant	Building Department/ Planning Department	Prior to approval of building permit	Once during review of building permit	Minimize danger from liquefaction	Applicant

Mitigation No.	Mitigation Measure	Individual Responsible for Monitoring and/or Reporting	Individual or Organization Responsible for Verifying Compliance	Timing of Initial Action	Frequency and Duration of Monitoring	Performance Criteria	Proposed Funding
	minimize the dangers from damage due to earthquake-induced liquefaction.						
3.8.4f	Development in areas of steep or unstable slopes shall be limited to minimize hazards caused by landslides or liquefaction.	Applicant	Building Department/ Planning Department	Prior to approval of a tentative subdivision map	Once during review of tentative subdivision map	Minimize danger from landslides and liquefaction	Applicant
3.8.5a	All visible mine entrances, shafts and tunnels shall be secured to prevent entry. Site hazards shall be assessed in accordance with The Department of Toxic Substance Control Handbook, "Abandoned Mine Lands Preliminary Assessment."	Applicant	Environmental Health	Prior to approval of improvement plans	Once, to inspect site	Eliminate danger from exposed mine shafts	Applicant

Table S-1
Summary of Impacts and Mitigation Measures

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
3.1 Land Use					
3.1.1	Consistency of the proposed Forest Ranch project with the land use designations of the 1981 Foresthill General Plan.		No additional mitigation measures are required.	Less than Significant	
3.1.2	Consistency of the proposed Forest Ranch project with the land use and community development policies of the 1981 Foresthill General Plan.		No mitigation measures are required.	Less than Significant	
3.1.3	Land use conflicts between the proposed Forest Ranch project and existing and planned land uses in the vicinity of the project site.	3.1.3a	The proposed recreational vehicle park shall be relocated away from the boundaries of the project site, into the interior of the site, to buffer it from adjacent sensitive land uses.	Potentially Significant	Less than Significant
		3.1.3b	The Rural Residential and Low Density Residential areas located adjacent to Forest Service property shall be relocated away from the Foresthill Work Center property, using the Open Space designation to buffer them from this existing use which is industrial in character.	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
		3.1.3c	A Specific Plan shall be prepared for the project site that clearly delineates the location of proposed land uses and zoning.	Potentially Significant	Less than Significant
3.1.4	Consistency of the proposed Forest Ranch project with the land use designations and policies of the Draft Foresthill Divide Community Plan.		No other mitigation measures are available.	Significant	Significant and Unavoidable
3.2 Aesthetics					
3.2.1	Alteration of views of the project site from roadways along and through the site, and from surrounding properties.	3.2.1a	Tentative subdivision maps for residential development and multiple family development shall be designed to reflect and consider natural features, visibility of structures, and the relationship of the project to surrounding uses, and to maintain the character and visual quality of the area.	Significant and Unavoidable	Significant and Unavoidable
		3.2.1b	The professional office development, recreational facilities, and multiple family development shall be designed to minimize the visual impact of parking areas on public roadways.	Significant and Unavoidable	Significant and Unavoidable
		3.2.1c	New development in scenic areas (e.g., river canyons, watersheds,	Significant and	Significant and

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			scenic highway corridors, community gateways, ridgelines and steep slopes) outside the commercial core shall be planned in a manner which employs design, construction, and maintenance techniques that: a. Avoid locating structures along ridgelines and steep slopes such that they would be silhouetted from below or from a public road; b. Incorporate design and screening measures to minimize the visibility of structures and graded areas; c. Maintain the character and visual quality of the area. d. Utilize natural landforms and vegetation for screening structures, access roads, building foundations, and cut and fill slopes. e. Incorporate landscaping that avoids significant discontinuity in landscaping vegetation between developed areas and adjacent open space or undeveloped areas.	Unavoidable	Unavoidable

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
		3.2.1d	Roads and other public works projects shall incorporate aesthetic values, as well as utility, safety and economy.	Significant and Unavoidable	Significant and Unavoidable
		3.2.1e	Significant natural, open space and cultural resources shall be identified in advance of development and incorporated into site-specific development project design.	Significant and Unavoidable	Significant and Unavoidable
		3.2.1f	All residential development shall provide private and/or public open spaces.	Significant and Unavoidable	Significant and Unavoidable
		3.2.1g	The location and design of all proposed structures must relate to existing terrain and must preserve the natural features of the site to the maximum extent possible. Any proposed design must take into account grade changes, locations of trees and boulders, and orientation of the proposed improvements to sun, wind and views. The Forest Ranch project shall adhere to the following Architectural/Design Standards:	Significant and Unavoidable	Significant and Unavoidable

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			a. The design objective of every home should be to allow the natural setting to remain the dominant image. Buildings within this setting must fit quietly into the existing landscape. The goal is to create appealing and interesting structures that are subtle and complementary to the dominant beauty of the forest setting. The area of soil and vegetation disturbance on each homesite must be limited to that required for necessary construction, access and landscaping purposes. Except where required by access, there must be no disturbance in setbacks and areas that are otherwise designated to be left in a natural state. House designs must fit their sloping sites rather than the site made to fit an inappropriate design. b. Tree, brush, and rock		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			removal must be limited to that reasonably necessary for the construction of a home and its protection from fire. No clear cutting of trees within any building envelope will be permitted; however, it is understood that some selective pruning or removal of trees and shrubs will be necessary for the development of any homesite. c. In many cases, the roof is the largest and most important visual element of a structure. The overall profile and articulation of the roof should be sufficiently irregular to break up anything that would otherwise appear too boxy or discordant with the landscape or neighboring structures. The roofs of all two-story homes should include single-story elements. For both one and two-story residences, the		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			roof profile should be richly varied, including individual masses of sufficient size, in plan and elevation, to convey the desired result. d. Exterior materials should generally be natural materials that blend and are compatible with the native landscape of the specific homesite. The predominant exterior materials shall consist of stone and wood. The allowable wood materials include shingles, beveled or tongue-and-groove board siding, logs, board-on-board or board and batten siding. This provision would not preclude the use of smooth T-111 siding with battens nailed to the exterior on 16-inch centers; however, the use of grooved T-111 siding is not permitted. e. Color can be described in terms of three attributes, including hue (its basic		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			color), value (lightness and darkness), and chroma (intensity). When proposing colors for the exterior materials for a home, keep in mind the following: • Color is affected by architectural design. Planar surfaces will read lighter than those that involve a great deal of articulated shade and shadow. • Color is affected by relationships. Colors must related to and be compatible with the natural landscape. • Portions of buildings usually suggest special treatment, including the use of more than one color on a single structure. The combinations of these colors must be addressed in a skillful way to ensure quiet and complementary		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			combinations are the results. • As a general guideline, light reflectance values for field and trim colors shall range from a low of 15 to a high or 40. • Where more than one color is approved on a single structure, all color changes must be made at an inside corner. f. Driveway access and garage location lend significant shape to the design and placement of the home. One of the greatest contributors to negative feelings about residential subdivisions is the often-present row of garage doors aligned along the street with oversized driveways leading to them. When planning a house in this area, the view of the garage doors from the street must be minimized. g. When considered in site		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			planning, solar conscious design can provide for energy efficiency in space heating by allowing for seasonal solar exposure/screening. Appropriate solar exposure can also help reduce the amount of snow removal necessary to access a site in winter. Areas of pavement that receive sunlight in winter often clear themselves after several cloudless days whereas north-facing and shadowed areas may retain snow for many consecutive days. h. Refuse enclosures must be provided and must accommodate a minimum of two (2) covered 32-gallon plastic refuse containers on wheels. The doors must be designed to prevent the attempts of bears and other animals trying to infiltrate the trash area. Special attention to		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			door thickness and construction, hinges, latches, and knobs will be required to prevent sabotage by scavenging animals. These refuse enclosures must be proximate to the street for ease of access by refuse collectors; however, they must also be architecturally compatible with the residence on the same parcel and screened from street view to the maximum degree possible. i. Walls, screens, or fences may be allowed when they are proposed as a visual extension of residences or other residential accessory structures and when they delineate a yard area near a residence (or accessory structure). Such walls, screens and fences should use materials and finishes consistent with the design materials used on the residence. If fences are		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			constructed along lot boundaries, such fences shall allow for the reasonable passage of wildlife. Chain-link fences are prohibited except where they are not visible from public roadways, trails, and adjoining residential or recreational uses. j. In most cases driveway slopes are required to be less than 8% overall and may not exceed a 12% gradient at their steepest part. Additionally, for safety considerations, there must be provided a near-level (<2%) transition area of at least 16 feet between slopes and garage doors and a near-level transition area of at least 8 feet between slopes and the edge of the pavement at the roadway. k. The Specific Plan shall also include the following design considerations:		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			• Separate design guidelines for the golf course and clubhouse facilities that reflect the forested, rural nature of the area; • Pedestrian and alternative vehicular entrances to the historic downtown from the project; • A circulation alternative that does not preclude a roadway connection from the project site to Yankee Jim's Road; • Provisions for transit and park & ride facilities (including school bus stops); • Street lighting and other outside lighting should incorporate "dark skies" principles; • Gated communities shall be precluded; and, • Provisions for public play shall be incorporated into the golf course approvals.		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
3.2-2	Aesthetic impacts due to tree removal, grading and new construction.	3.2.2a	Project design shall incorporate screening measures to minimize the visibility of structures and graded areas. Natural landforms and vegetation shall be utilized for screening structures, access roads, building foundations, and cut and fill slopes.	Potentially Significant	Less than Significant
		3.2.2b	Land alterations for the project shall comply with the following guidelines: a. Limit cuts and fills; b. Limit grading to the smallest practical area of land; c. Limit land exposure to the shortest practical amount of time; d. Replant graded areas with native or non-invasive exotic species to ensure establishment of plant cover before the next rainy season; and e. Create grading contours that blend with the natural contours on site or with contours on property immediately adjacent to the area of development	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
		3.2.2c	New roads, parking and utilities shall be designed to minimize visual impacts. Unless limited by geological or engineering constraints, utilities shall be installed underground, and roadways and parking areas shall be designed to fit the natural terrain.	Potentially Significant	Less than Significant
		3.2.2d	The project shall comply with the "Forest Ranch Specific Plan Area Architectural/Design Standards."	Potentially Significant	Less than Significant
		3.2.2e	Future development proposals shall be submitted to the Foresthill Design Review Committee (Foresthill Forum) to ensure consistency with design standards and community concerns	Potentially Significant	Less than Significant
		3.4-11	Also see Mitigation Measure 3.4.1-11.	Potentially Significant	Less than Significant
3.2.3	Introduction of new sources of light and glare with buildout of the project site, and impacts of increased lighting on the night sky.	3.2.3a	Outdoor security lighting at recreational facilities, professional offices, and multi-family residences shall be controlled by timers.	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
		3.2.3b	Outdoor security lighting on individual single family residences shall be restricted through the design review process.	Potentially Significant	Less than Significant
		3.2.3c	The golf course driving range shall not be lighted.	Potentially Significant	Less than Significant
		3.2.3d	A lighting plan shall be prepared and submitted to the County for approval in conjunction with permits for multi-family development, professional office development, and development of recreational facilities. The lighting plan shall comply with the guidelines provided by the International Dark Sky Association. Night lighting from the exterior of a building and the project's boundaries shall be limited to that necessary for security, safety, and identification. Night lighting shall also be screened from adjacent residential areas and not be directed in an upward manner or beyond the boundaries of the parcel on which the building is located. Alternatively, a Dark Sky	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			Ordinance is adopted by the County by such time as application is made for a permit, the project shall comply with the ordinance.		
		3.2.3e	New lighting shall be directed downward and shall not shine onto adjacent properties.	Potentially Significant	Less than Significant
3.3 Community Development					
3.3.1 Population/Housing					
3.3.1-1	Development of the proposed project would increase the population in the community of Foresthill (growth-inducing impact.)		Other than selecting a Project Alternative with fewer dwelling units (and therefore lower population), no mitigation measures are available.	Significant and Unavoidable	Significant and Unavoidable
3.3.1-2	Development of the proposed project would promote an imbalance of jobs and housing in the community of Foresthill.		Other than selecting a Project Alternative with fewer dwelling units and/or more jobs-generating uses, no mitigation measures are available.	Significant and Unavoidable	Significant and Unavoidable
3.3.1-3	Impact of the proposed project on compliance with the Housing Element of the Placer County General Plan and meeting the housing needs in the community of Foresthill.	3.3.1-3a	Each tentative subdivision map and multi-family housing project shall comply with the Placer County Inclusionary Housing Ordinance in effect at the time each project is proposed.	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
		3.3.1-3b	Alternatively, the developer shall submit for County approval a comprehensive inclusionary housing plan for the entire project that demonstrates compliance with the Placer County Inclusionary Housing Ordinance in effect at the time it is submitted	Potentially Significant	Less than Significant
		3.3.1-3c	The Specific Plan submitted for the project site shall specify the mechanism that will be implemented to require that 1,700 of the 2,213 units will be age-restricted.	Potentially Significant	Less than Significant
3.3.2 Public Services and Utilities					
3.3.2-1	Provision of adequate public protection to serve the proposed project.	3.3.2-1	Project developers shall be required to establish a special benefit assessment district or other funding mechanism to assure adequate funding for law enforcement and related services and operational costs, with funding responsibilities imposed on residential, office, commercial and recreational properties within the Forest Ranch project, including the costs for services required to satisfy General Plan standards now in existence or later amended. The funding	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			mechanism shall be subject to the prior review and approval of Placer County, and shall be approved by the affected landowners prior to recordation of the first final subdivision map.		
3.3.2-2	Provision of adequate fire protection services and facilities and emergency medical response to serve the proposed project.	3.3.2-2a	All structures larger than 2,500 square feet shall be sprinklered.	Potentially Significant	Less than Significant
		3.3.2-2b	A fire station shall be provided on the project site with a design and location to be approved by the Foresthill Fire Protection District. Equipment and paid staff shall be provided for the fire station in accordance with the requirements of the Foresthill Fire Protection District. The fire station shall be dedicated to the Foresthill Fire Protection District, and construction and equipping of the station shall be completed prior to issuance of the first certificate of occupancy for the project site.	Potentially Significant	Less than Significant
		3.3.2-2c	The project shall make a fair share contribution toward improvements to the existing Foresthill Fire Protection District Station #1 located in Foresthill. The fair	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			share contribution shall be determined by the Foresthill Fire Protection District.		
		3.3.2-2d	These requirements, including provision for ongoing funding for fire station staffing, shall be included in a fully executed agreement between the Foresthill Fire Protection District and the project applicant. The agreement shall be executed prior to approval of the first tentative subdivision map, conditional use permit or minor use permit for the project site.	Potentially Significant	Less than Significant
3.3.2-3	Provision of adequate solid waste collection and disposal services for the proposed project.	3.3.2-3a	The County shall require that all new residents of the Forest Ranch project subscribe to garbage collection service.	Potentially Significant	Less than Significant
		3.3.2-3b	Contractors shall be required to provide on-site systems for reducing construction debris that divert at least 50% of debris from the MRF and Landfill.	Potentially Significant	Less than Significant
3.3.2-4	Provision of adequate parks and recreation facilities and programs to	3.3.2-4a	The developer shall be required to develop and maintain 22 acres of	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
	serve the proposed project.		private active recreation facilities and to either pay park dedication fees or provide and maintain 22 acres of developed public community recreation. In lieu meeting this standard, the project could explore other options as described in the Planned Development portion of the Zoning Ordinance (Section 17.54.100(D)3).		
		3.3.2-4b	Trail classifications shall be shown on all project plans in accordance with the Placer County Trails Master Plan.	Potentially Significant	Less than Significant
		3.3.2-4c	A County Service Area, Zone of Benefit under CSA #28 (the County-wide County Service Area), community services district, expansion of powers of the Foresthill P.U.D., master homeowners association, parks and recreation district, assessment district, or other entity for sustainable park maintenance shall be formed or completed for the project site prior to recordation of the first final subdivision map. A	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			park maintenance tax or assessment with a provision for increases indexed to the Consumer Price Index shall be approved by the landowners (voters) of the project site, to be developed prior to recordation of the first final subdivision map.		
3.3.2-5	Provision of adequate school facilities to serve the proposed project.		No additional mitigation measures are required or available.	Less than Significant	
3.3.2-6	Provision of adequate road maintenance and snow removal to serve the proposed project.	3.3.2-6	The Specific Plan shall propose a method for provision of adequate road maintenance and snow removal to serve the project area. This shall include adequate funding for maintenance and snow removal. Prior to recordation of any map or acceptance by the County of any improvements within the project area, a County Service Area, Zone of Benefit under CSA #28 (the County-wide County Service Area), community services district, expansion of powers of the Foresthill P.U.D., assessment district, or other mechanism acceptable to the County to ensure road	Potentially Significant	Less Than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			maintenance and snow removal shall be formed or completed.		
3.3.2-7	Provision of adequate public utilities to serve the proposed project.		No mitigation measures are required.	Less than Significant	
3.3.2-8	Provision of adequate wastewater disposal systems to serve the proposed project.	3.3.2-8a	A community services district, expansion of powers of Foresthill P.U.D., or other public entity for sustainable wastewater treatment facility maintenance and operation shall be formed or completed prior to recordation of the first final subdivision map for a development project with a density higher than one dwelling units per 2.3 acres.	Potentially Significant	Less than Significant
		3.3.2-8b	The recreational vehicle park, multiple family dwellings, single family dwellings at a density greater than 1 unit per 2.3 acres, and restaurants shall be connected to the wastewater treatment facility as a condition of approval of a conditional use permit and/or tentative subdivision map (when applicable) and prior to issuance of a certificate of occupancy.	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
		3.3.2-8c	The developer shall obtain Waste Discharge Requirements (WDRs) from the Regional Water Quality Control Board for the on-site wastewater treatment facility, which will assure that the size, treatment process, and discharge of treated effluent are adequate and in compliance with local, State and federal standards. If the size or other characteristics of the golf course are inadequate for spray irrigation of treated effluent, adequate area shall be provided on the site in accordance with WDRs.	Significant	Less than Significant
		3.3.2-8d	Construction of sewer lines, reclaimed water lines, reservoirs, and the wastewater treatment facility shall be in compliance with Mitigation Measures 3.4.2-1a-e and 3.4.1-1a.	Significant	Less than Significant
3.3.2-9	Provision of a safe and adequate water supply and fire flow to serve the proposed project.	3.3.2-9a	The portion of the project site located outside Foresthill P.U.D. boundaries shall be annexed to the District prior to recordation of the first final subdivision map.	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
		3.3.2-9b	A "will serve" letter shall be obtained from the Foresthill P.U.D. prior to recordation of the first final subdivision map or other County approval.	Potentially Significant	Less than Significant
		3.3.2-9c	An emergency water storage tank(s) shall be constructed onsite by project developers and maintained by Foresthill P.U.D. The location(s) and volume of water to be stored shall be determined by Foresthill P.U.D. and the Foresthill Fire Protection District.	Potentially Significant	Less than Significant
		3.3.2-9d	Fire hydrants shall be installed and fire flow shall be provided in accordance with the requirements of the Foresthill P.U.D. and the Foresthill Fire Protection District.	Potentially Significant	Less than Significant
		3.3.2-9e	Construction of water lines and the emergency water storage tank(s) shall be in compliance with Mitigation Measure 3.4.1-a-b.	Potentially Significant	Less than Significant
		3.3.2-9f	The number of units allowed on the project site shall be reduced to 533, the number of units	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			anticipated on the site under the draft Foresthill Divide Community Plan.		
3.3.2-10	Provision of an adequate stormwater drainage system to serve the proposed project.	3.3.2-10a	The developer shall submit a master drainage plan for the project site for review and approval by the Placer County Public Works Department and the Placer County Flood Control and Water Conservation District with any Specific Plan or entitlement request submitted for property within the project site. The master drainage plan shall address design of any proposed drainage systems as well as drainage flowing into, through, and originating within the project area. The plan shall meet the requirements of the Placer County Land Development and Stormwater Management Manuals in force at the time of plan submittal. The plan shall address phasing of drainage system improvements. Subsequent development within the project site shall be consistent with the approved master drainage plan and any approved revisions thereto. A	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			preliminary master drainage plan shall be submitted as part of the environmental review process for any Specific Plan or the first entitlement request submitted for property within the project site.		
		3.3.2-10b	The Specific Plan shall propose a method to ensure sustainable storm drainage system operation and maintenance and funding. Prior to recordation of any map or acceptance by the County of any improvements within the project area, a County Service Area, Zone of Benefit under CSA #28, community services district, expansion of powers of Foresthill P.U.D., or other mechanism acceptable to the County to ensure adequate storm drainage operations shall be formed or completed.	Potentially Significant	Less than Significant
3.4 Natural Resources					
3.4.1 Biological Resources					
3.4.1-1	Construction activities resulting in ground disturbance (topographic alteration) could result in a moderate potential for ground instability and	3.4.1-1a	A preliminary geotechnical engineering investigation prepared by a licensed civil engineer and consistent with the requirements of	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
	erosion within the project site.		the Placer County Grading, Erosion, and Sediment Control Ordinance shall be submitted with the Specific Plan. More detailed geotechnical engineering investigations prepared by a licensed civil engineer and consistent with the requirements of the Placer County Grading, Erosion and Sediment Control Ordinance shall be submitted with each Tentative Subdivision Map application within the project area. Other entitlement requests may be required to prepare project specific geotechnical investigations if findings in the Specific Plan preliminary engineering investigation indicates a need.		
		3.4.1-1b	Erosion and ground instability mitigation measures shall include conformance to the Uniform Building Code and Placer County's Grading, Erosion and Sediment Control Ordinance. The required designs shall include methods to control soil erosion and ground instability. Measures to control soil erosion and mitigate	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			potential differential settlement and construction related ground instability impacts include, but are not limited to: 1. Prohibit the placement of habitable structures or individual sewage disposal systems on or in critically expansive soils. 2. In landslide hazard areas, prohibit avoidable alteration of land in a manner that could increase the hazard, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes. 3. Limit development in areas of steep (in excess of 30%) or unstable slopes, or slope breaks to minimize hazards caused by landslides, liquefaction, construction undercutting or vegetation		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			loss. 4. Septic leachfields and drainage plans shall direct runoff and drainage away from steep and/or unstable slopes. 5. A California licensed Civil Engineer shall prepare and submit to the Department of Public Works a grading plan and erosion control plan (winterization/ground instability plan) for new development projects prior to any environmental review determination.		
3.4.1-2	Potential lack of mass balance due to grading on the project site, requiring importation or exportation of fill.		Prior to approval of a Specific Plan or the first requested entitlement, a grading plan shall be prepared for the project site that complies with the requirements of Article 15.48 of the Placer County Code, Grading, Erosion and Sediment Control Ordinance. Grading plans shall: 1. Incorporate sound soil conservation practices and	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			minimize land alterations. 2. Limit cuts and fills and balance cut and fill on-site. 3. Limit grading to the smallest practical area of land. 4. Limit land exposure to the shortest practical amount of time. 5. Replant graded areas with native or non-invasive exotic species to ensure establishment of plant cover before the next rainy season. 6. Create grading contours that blend with the natural contours on-site or with contours on property immediately adjacent to the area of development. 7. Roadways, parking areas, trails and paths shall be designed to fit the natural terrain and minimize erosion. 8. Development near or on portions of hillsides shall not cause or worsen natural hazards such as erosion, sedimentation, or water quality concerns. 9. Erosion and sediment control		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			measures including temporary vegetation (native or non-invasive exotic species) sufficient to stabilize disturbed areas. 10. Incorporate the use of natural stormwater drainage systems to preserve and enhance natural features whenever possible. 11. Limit grading activities in the rainy season to the extent possible. 12. Indicate that proper control of erosion, sedimentation, siltation and other pollutants will be implemented per NPDES permit requirements and County standards. 13. Use landscaping, revegetation, the use of rice straw or other weed-free vegetative material for erosion control measures, or similar stabilization techniques.		
3.4.1-3	Implementation of the proposed project will result in the removal of mixed coniferous forest habitat.		No mitigation measures are required.	Less than Significant	

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
3.4.1-4	Implementation of the proposed project will result in the removal of montane hardwood habitat.		No mitigation measures are required.	Less than Significant	
3.4.1-5	Implementation of the proposed project will result in loss of habitat and may result in the direct take of common resident and migratory wildlife species.		No mitigation measures are required.	Less than Significant	
3.4.1-6	Implementation of the proposed project may remove habitat for Brandegee's clarkia potentially occurring on the project site.	3.4.1-6a	A focused rare plant survey for Brandegee's clarkia shall be conducted by a qualified biologist during the blooming season (May-July) to determine the presence/absence of this species on the site within the development area only. If this species is not found onsite, Mitigation Measure 3.4.1-6b is not required.	Potentially Significant	Less than Significant
		3.4.1-6b	A focused rare plant survey for Brandegee's clarkia shall be conducted by a qualified biologist during the blooming season (May-July) to determine the presence/absence of this species on the site within the development area only. If this species is not found onsite, Mitigation Measure 3.4.1-6b is not required.	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
3.4.1-7	Implementation of the proposed project may result in the removal of potential valley elderberry longhorn beetle habitat.	3.4.1-7a	A focused survey for elderberry shrubs shall be conducted by a qualified biologist to determine the presence/absence of the valley elderberry longhorn beetle on the project site within the development area only. If no elderberry shrubs are identified onsite, Mitigation Measure 3.4.1-7b is not required.	Potentially Significant	Less than Significant
		3.4.1-7b	If elderberry shrubs are identified within the development area, consultation with USFWS shall be required. Ideally, the project shall avoid removal or indirect impacts to elderberry shrubs. The USFWS typically requires a 25-foot setback from the outer dripline edge of each shrub. If the shrubs cannot be avoided, a mitigation plan shall be implemented which must include one of more of the following: 1. Obtaining credits at an approved mitigation bank; or 2. Implementation of an onsite mitigation and monitoring plan that includes	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			transplantation of the shrub(s) and planting of elderberry seedlings.		
3.4.1-8	Implementation of the proposed project will result in the removal of potential nesting habitat for raptors and other migratory and resident birds.	3.4.1-8	If construction is proposed during breeding season (March-September), a focused survey for raptor and other special-status active bird nests shall be conducted by a qualified biologist within 30 days prior to the beginning of construction activities on the project site. If no active nests are found, no further mitigation is required. If active nests are found, nest locations shall be mapped and distributed to Placer County. No construction activities shall take place within 500 feet of the nest until the young have fledged. Weekly monitoring reports summarizing nest activities shall be submitted to the County until the nest is determined to be inactive. Trees containing nests that must be removed as a result of project implementation shall be removed during the non-breeding season (September to February).	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
3.4.1-9	Implementation of the proposed project will remove potential habitat for Pacific fisher and pine marten.	3.4.1-9a	Focused surveys for Pacific fisher and pine marten shall be conducted within the development area only to determine if these species are breeding in this area. A qualified biologist shall conduct the surveys during the breeding season at the time of day each species is most active. Technical assistance from the CDFG and/or USFWS shall be requested to determine appropriate survey techniques. If no evidence of these species is found during field surveys, Mitigation Measure 3.4.1-9b is not required.	Potentially Significant	Less than Significant
		3.4.1-9b	If active Pacific fisher/pine marten dens are determined to occur on the site, technical assistance shall be requested from the appropriate regulatory agency to determine further actions and mitigation measures. At a minimum, construction activities shall not occur within 500 feet of an active den/nest.	Potentially Significant	Less than Significant
3.4.1-10	Implementation of the proposed project will remove potential roosting habitat	3.4.1-10a	Prior to construction, a focused survey shall be conducted to	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
	for special-status bat species.		determine the presence/ absence of roosting bats on the project site. Maternity roosts are generally occupied by mothers and young between May and August (Zeiner et al., 1990b). Mitigation Measure 3.4.1-10b is not required if there are no bat species utilizing the project site as roosting habitat.		
		3.4.1-10b	If bats are determined to roost onsite, consultation with CDFG and/or USFWS shall be requested to determine measures to avoid disturbance during construction. If an active maternity roost is identified, at a minimum, no construction activities shall occur within 500 feet until the young are able to fly from the roost. If active day or night roosts are found onsite, measures shall be implemented to safely flush bats from the roosts prior to the onset of construction activities. Such measures may include removal of roosting site during the time of day the roost is unoccupied or the installation of one-way doors, allowing the bats to leave the roost	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			but preventing them from re-entering.		
3.4.1-11	Implementation of the proposed project will result in the removal and disturbance of oak trees.	3.4.1-11	The project applicant shall submit a tree survey map as part of the Specific Plan submittal of oak trees proposed to be removed or disturbed during project development. Within these impact areas, an inventory of the location, number and health of oaks (greater than or equal to 6" in diameter) shall be conducted by a certified arborist. An oak tree mitigation plan shall be prepared prior to approval of tentative maps or any ground disturbing activities and approved by the County for oaks with a dbh of 6 inches or greater that are not dead, dying or a public safety hazard, as determined by the certified arborist.	Potentially Significant	Less than Significant
3.4.1-12	Implementation of the proposed project could result in fill of jurisdictional waters of the U.S.	3.4.1-12a	Potentially impacted jurisdictional waters of the U.S. shall be delineated according to Corps methodology. The map shall be submitted to the Corps for verification and the appropriate Section 404 permit shall be	Potentially Significant	Less than Significant

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				Before Mitigation	After Mitigation
			acquired prior to submittal of improvement plans. Section 401 Water Quality certification or waiver must also be acquired		
		3.4.1-12b	Any jurisdictional waters that would be lost or disturbed shall be replaced or rehabilitated on a "no net loss" basis in accordance with the Corps' mitigation guidelines. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods agreeable to the Corps.	Potentially Significant	Less than Significant
		3.4.1-12c	Prior to issuance of a grading permit, a Streambed Alteration Agreement shall be obtained from CDFG, pursuant to Section 1600 of the California Fish and Game Code, for each stream crossing and any other activities affecting the bed, bank, or associated riparian vegetation of the stream. If required, the project applicant shall coordinate with CDFG in developing appropriate mitigation, and shall abide by the conditions of any executed permits.	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
3.4.1-13	Implementation of the proposed project could result in the removal and disturbance of riparian habitat.	3.4.1-13a	As provided in Mitigation Measure 3.4.1-12c, prior to issuance of a grading permit, a Streambed Alteration Agreement shall be obtained from CDFG, pursuant to Section 1600 of the California Fish and Game Code, for each stream crossing and any other activities affecting the bed, bank, or associated riparian vegetation of a stream	Potentially Significant	Less than Significant
		3.1.1-13b	Refer to Mitigation Measures 3.4.2-2f for additional mitigation related to riparian areas.	Potentially Significant	Less than Significant
3.4.1-14	Cumulative contribution of the proposed project to the loss of habitat and forage lands, habitat degradation due to encroaching urbanization, direct impacts to sensitive species, habitat fragmentation, and obstruction of movement corridors, and harassment of wildlife by humans and pets.		No mitigation measures are available.	Cumulative, Significant and Unavoidable	Cumulative, Significant and Unavoidable
3.4.1-15	Development of the project site could destroy or alter unknown paleontological resources.	3.4.1-15	Prior to any ground-disturbing activities, a preconstruction paleontological resource impact assessment shall be conducted by a qualified professional	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			paleontologist. The resource impact assessment shall be conducted in accordance with the Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines developed by the Society of Vertebrate Paleontology. If the assessment concludes that there is a high potential for disturbing significant fossils during project construction, a mitigation monitoring plan shall be prepared that includes monitoring by a qualified paleontologist to salvage any fossils uncovered, identification of the salvaged fossils, determination of their significance, and placement of curated fossil specimens into a permanent public museum collection (such as the California state repository, the University of California Museum of Paleontology at Berkeley).		
3.4.2 Hydrology/Water Quality					
3.4.2-1	Water quality standards/waste discharge requirements violation: Potential degradation of surface and groundwater	3.4.2-1a	All onsite wastewater treatment and disposal facilities (whether septic tank/leachfield or	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
	quality due to installation and operation of community and individual wastewater treatment and disposal systems.		engineered alternative systems) proposed to be installed on individual lots shall comply with Placer County's Ordinance Governing Individual On-Site Sewage Disposal Systems, including compliance with the minimum locational and operational criteria described therein.		
		3.4.2-1b	Prior to approval of tentative maps or improvement plans (whichever comes first) involving lots proposed for onsite wastewater disposal systems, a site evaluation shall be performed for each proposed lot in accordance with Placer County's Ordinance Governing Individual On-Site Sewage Disposal Systems. Proposed lots shall contain sufficient area to ensure compliance with Placer County and Regional Water Quality Control Board standards and criteria for treatment and disposal facilities, including sufficient replacement area in the event of system failure. On-site sewage	Potentially Significant	Less than Significant

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				Before Mitigation	After Mitigation
			treatment and disposal will only be allowed on parcels where all current regulations can be met and where parcels have the area, soils, and other characteristics that permit such disposal facilities without threatening surface or groundwater quality or posing any other health hazards.		
		3.4.2-1c	The Specific Plan shall clearly show the location of all watercourses and existing springs. No onsite wastewater disposal system or replacement area shall be located within 300 feet of such features.	Potentially Significant	Less than Significant
		3.4.2-1d	A preliminary design of all proposed community wastewater treatment and disposal facilities shall be prepared and provided to Placer County prior to consideration of the Specific Plan. Tentative maps shall not be approved for the project unless the proposed facilities are deemed by the regulatory agencies to be adequate to prevent potential water quality degradation from facilities	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			operation at buildout of the proposed project. Subsequent environmental analysis of proposed facilities shall be undertaken, to evaluate the impact of any proposed treatment and disposal facilities.		
		3.4.2-1e	The proposed recreational vehicle park shall be connected to the proposed community wastewater treatment and disposal facilities.	Potentially Significant	Less than Significant
3.4.2-2	Water quality degradation due to erosion, sedimentation and urban runoff due to implementation of the proposed project.	3.4.2-2a	Refer to Mitigation Measure 3.4.1-2 related to the requirements of a grading plan.	Potentially Significant	Less than Significant
		3.4.2-2b	Best Management Practices (BMPs) shall be applied during construction to minimize erosion and sedimentation. An erosion control plan shall be submitted prior to ground disturbing activities that reduces erosion and water quality degradation. Environmental review for subsequent development shall identify appropriate BMP's for site specific conditions. BMP's selected shall be in accordance	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			with the California Stormwater Quality Association "Stormwater Best Management Practice Handbook," or other appropriate criteria as determined by the Design Review Committee. The erosion control plan shall indicate that proper control of erosion, sedimentation, siltation and other pollutants will be implemented per NPDES permit requirements and County standards. The plan shall address storm drainage during construction and propose BMP's to reduce erosion and water quality degradation. All drainage facilities shall be constructed to Placer County specifications. The plan shall indicate whether grading will occur in the winter months. If grading is proposed for the winter months, mechanisms to avoid sedimentation of creeks and damage to riparian habitat shall be identified. The plan shall also specify restoration measures for graded areas including but not limited to landscaping,		

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				Before Mitigation	After Mitigation
			revegetation, the use of rice straw or other weed free vegetative material for erosion control measures. Drainage facilities shall be protected as necessary to prevent erosion of the onsite soils immediately following grading activities. In addition, cut slopes and drainage ways within native material shall be protected from direct exposure to water runoff immediately following grading activities. The design for collected run-off shall dissipate the energy. Cut and fill embankment slopes shall be protected from sheet, rill, and gully erosion.		
		3.4.2-2c	Design of the project shall ensure that runoff is collected and conveyed into an appropriate collection system designed for the project site to receive the runoff, minimize erosion, and convey the runoff to storm water quality treatment facilities (BMP's) and ultimately off-site. Points of	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			concentrated runoff discharge shall be protected with energy dissipating devices as deemed appropriate. All drainage system components shall be designed in accordance with the Placer County Flood Control and Water Conservation District Storm Water Management Manual and the Placer County Land Development Manual. Environmental review for subsequent development shall identify appropriate BMP's for site specific conditions. BMP's selected shall be in accordance with the California Stormwater Quality Association "Stormwater Best Management Practice Handbook," or other appropriate criteria as determined by the Development Review Committee.		
		3.4.2-2d	A requirement of recordation of final subdivision maps or issuance of permits for construction pursuant to an approved conditional use permit or minor use permit shall be the preparation of a plan for use of BMPs to control long-term water quality	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			degradation from urban runoff. Prior to any project development said plan shall obtain the approval of Placer County. The BMP Plan shall indicate that proper control of pollutants will be implemented per NPDES permit requirements and County standards. The plan for use of BMPs shall also include specific measures for parking lot or roadway improvement projects to include a parking lot sweeping program and periodic storm drain inlet clearing. Parking lot sweeping shall occur on a monthly basis, and storm drain inlet clearing shall occur semi-annually. The plan shall also include the installation of structural BMP's in the proposed parking lots for removing pollutants of concerns from the runoff in these areas. The project proponent shall develop and present to Placer County a strategy to ensure the long-term implementation of the plan. Environmental review for subsequent development shall		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			identify appropriate BMP's for site specific conditions. BMP's selected shall be in accordance with the California Stormwater Quality Association "Stormwater Best Management Practice Handbook," or other appropriate criteria as determined by the Design Review Committee.		
		3.4.2-2e	Project design that minimizes drainage concentrations and impervious coverage and maintains natural site drainage conditions, to the extent feasible, shall be incorporated in future project designs.	Potentially Significant	Less than Significant
		3.4.2-2f	The Specific Plan shall specify sensitive habitat buffers that shall be measured as follows: 100 feet from the centerline of perennial streams, 50 feet from centerline of intermittent streams, and 50 feet from the edge of sensitive habitats to be protected. Some exceptions may be made if reasonable use of the property would otherwise be denied, the location is necessary to avoid or mitigate hazards to the	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			public, the location is necessary for repair or construction of infrastructure where there is no feasible alternative. If encroachment into a riparian area is proposed, the following criteria shall be implemented in descending order of desirability: • Avoid the disturbance of riparian vegetation; • Replace riparian vegetation (on-site, in-kind); • Restore another section of creek (in-kind); and/or • Pay a mitigation fee for restoration elsewhere in the Plan area. •		
		3.4.2-2g	Subsequent applications for Tentative Subdivision maps shall identify the location of protected creek corridors and creek setback areas through the use of easements or dedications. These areas shall be designated as open space.	Potentially Significant	Less than Significant
		3.4.2-2h	Design, construction, and maintenance techniques shall ensure development near a creek	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			will not cause or worsen natural hazards (such as erosion, sedimentation, flooding, or pollution) and will include erosion and sediment control practices such as: 1) turbidity screens and other management practices, which shall be used as necessary to minimize siltation, sedimentation, and erosion, and shall be left in place until disturbed areas are stabilized with permanent vegetation that will prevent the transport of sediment off site; and 2) temporary vegetation sufficient to stabilize disturbed areas.		
		3.4.2-2i	The Specific Plan shall include mechanisms that provide for the long-term creek corridor maintenance by specifying a guaranteed financial commitment to the County which accounts for all anticipated maintenance activities.	Potentially Significant	Less than Significant
		3.4.2-2j	The Master Drainage plan shall include the use of natural stormwater drainage systems to	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			preserve and enhance natural features and include Best Management Practices (BMP's) including but not limited to artificial wetlands, grassy swales, infiltration/sedimentation basins, riparian setbacks.		
		3.4.2-2k	New development shall obtain from the State Water Resources Control Board a General Construction Activity Stormwater Permit under the National Pollutant Discharge Elimination System (NPDES) and comply with all requirements of the permit to minimize pollution of stormwater discharges during construction.	Potentially Significant	Less than Significant
3.4.2-3	Placement of housing or other structures in flood prone areas during implementation of the proposed project.	3.4.2-3a	All drainage-related infrastructure shall be designed in accordance with the standards contained in the Placer County Flood Control and Water Conservation District's Stormwater Management Manual. All new development shall be planned and designed so that no damage occurs to structures or improvements during the 100-year event and no inundation of private	Potentially Significant	Less than Significant

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			property utilized for human habitation or wastewater disposal facilities occurs during the 10-year event. The Master Drainage Plan to be provided with the Specific Plan shall identify all 100 year flood plains within the project site and designate these areas for open space uses. Plans identifying areas susceptible to 100-year and 10-year events shall be presented to the Placer County Flood Control and Water Conservation District prior to consideration by the County of the first tentative map, conditional use permit or minor use permit.		
		3.4.2-3b	Development within the project area shall comply with the requirements of the Placer County Flood Damage Prevention Regulations (Article 15.52, Placer County Code).	Potentially Significant	Less Than Significant
		3.4.2-3c	Flood control mechanisms shall be designed to utilize natural or non-structural flood control facilities, including off-stream flood control basins, to preserve and enhance	Potentially Significant	Less than Significant

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			creek corridors. Flood control structures, facilities, and improvements shall be designed to conserve resources, incorporate and preserve scenic values, and incorporate opportunities for recreation where appropriate.		
3.4.2-4	Cumulative impacts created by runoff due to implementation of the proposed project that may result in on- or off-site flooding.	3.4.2-4	The developer shall submit a master drainage plan for the project site for review and approval by the Placer County Public Works Department and the Placer County Flood Control and Water Conservation District with the Specific Plan or subsequent entitlement request submitted for the project site. The master drainage plan shall be designed to create no net increase in peak flows from any individual identified watershed (Figure 3.4-4c) and shall meet all of the requirements of the Placer County Land Development Manual and Stormwater Manual in force at the time of plan submittal. The master drainage plan shall address phasing tied to individual subdivision maps, conditional use	Potentially Significant and Cumulative	Less Than Significant

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			permits, and minor use permits, subject to approval by the Public Works Department and the District. Subsequent development within the project site shall be consistent with the approved master drainage plan. If detention/retention facilities are identified as necessary, these shall be designed in accordance with the Master Drainage Plan and the Placer County Flood Control and Water Conservation District Storm Water Management Manual.		
3.4.3 Agricultural/Timber Resources					
3.4.3-1	Loss of agricultural land due to proposed development of the project site.	3.4.3-1	No mitigation measures are required.	Less Than Significant	
3.4.3-2	Loss of timber production land due to proposed development of the project site.	3.4.3-2	No mitigation measures are available.	Cumulative, Significant and Unavoidable	Cumulative, Significant and Unavoidable
3.4.4 Air Quality					
3.4.4-1	Exhaust and fugitive dust emissions generated by construction activities at all phases of the proposed project, including excavation and grading,	3.4.4-1a	The applicant shall require construction contractors to submit to the District and receive approval of a Construction	Significant and Unavoidable	Significant and Unavoidable

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	construction vehicle traffic, and wind blowing over exposed earth.		Emission/Dust Control Plan prior to groundbreaking. At a minimum, this plan shall include the following measures: a. Water exposed earth surfaces as necessary to eliminate visible dust emissions (at least one water truck shall be available for every three pieces of earthmoving equipment); b. Suspend grading operations when fugitive dusts exceed District Rule 228 Fugitive Dust limitations; c. Pave, use gravel cover, or spray a dust control agent on all haul roads; d. Reduce speeds on unpaved roads to 15 mph or lower (this speed shall be posted); e. Clean earthmoving construction equipment with water once daily, and clean all haul trucks leaving the site; f. Cover all trucks hauling soil, sand, and other loose materials to ensure that all		

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			trucks hauling such materials maintain at least two feet of freeboard; g. Institute measures to reduce wind erosion when site preparation is completed; h. Install sandbags or other erosion control measures to prevent silt runoff onto public roadways; i. Spread soil binders on unpaved roads and employee/equipment parking area; j. Wet broom or wash streets if silt is carried over to adjacent public thoroughfares; k. Install wheel washers or wash all trucks and equipment leaving the site; l. Provide paved or grass-covered areas for construction employee vehicle parking; and m. Designate a person or persons to monitor the dust control program as approved by the PCAPCD, and to order increased watering, as necessary, to prevent the		

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			transport of dust offsite. This designee's duties shall include holiday and weekend periods when work may not be in progress. For project components that would not be constructed/developed immediately following the mass-grading phase, the following dust control measures shall also be implemented: n. Apply chemical soil stabilizers or commence reestablishment of ground cover to construction areas within 96 hours of completing grading activities; o. Develop and implement a wind erosion monitoring program for areas which will remain inactive for extended periods; this program should at a minimum provide for weekly monitoring of inactive sites to assess the effectiveness of wind erosion controls. p. No open burning of removed		

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			vegetation during infrastructure improvements. Vegetative material should be chipped or delivered to waste to energy facilities. q. Operational water trucks shall be onsite at all times. Apply water to control dust as required per District Rule 228.		
		3.4.4-1b	The applicant shall require the contractor to reduce NOx and ROG emissions by complying with the construction vehicle air pollutant control strategies developed by the PCAPCD. The contractor shall include in the construction contracts the following requirements or measures shown to be equally effective: a. Construction equipment operators shall shut off equipment when not in use to avoid unnecessary idling. Generally, vehicle idling shall be kept below 5 minutes. b. Contractor's construction	Significant and Unavoidable	Significant and Unavoidable

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			equipment shall be properly maintained and in good working condition. c. Construction equipment exhaust shall not exceed PCAPCD Rule 202 (Visible Emissions) limitations. d. The prime contractor submit to the District a comprehensive inventory (i.e. make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower of greater) that will be used an aggregate of 40 or more hours for the construction project. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the District with the		

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			anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. e. An enforcement plan shall be established to weekly evaluate project-related on-and-off- road heavy-duty vehicle engine emission opacities, using standards as defined in California Code of Regulations, Title 13, Sections 2180 - 2194. An Environmental Coordinator, CARB-certified to perform Visible Emissions Evaluations (VEE), shall routinely evaluate project related off-road and heavy-duty on-road equipment emissions for compliance with this requirement. Operators of vehicles and equipment found to exceed opacity limits will be notified and the equipment must be repaired within 72 hours. f. Construction contracts shall stipulate that the prime		

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			contractor shall provide a plan for approval by the District demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 30 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average. The District should be contacted for average fleet emission data. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available g. Construction contracts shall include language that prohibits the use of all heavy-duty off-road diesel equipment on forecast Spare		

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			the Air days. h. Use low sulfur fuel for stationary construction equipment. i. Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators. j. Use low emission on-site stationary equipment.		
		3.4.4-1c	Construction contractors shall be required to use low-VOC architectural coatings and asphalt in compliance with District Rules and Regulations. Contractors shall also be required to fuel stationary construction equipment with low-sulfur fuels, and use existing power sources (e.g., power poles) or clean fuel generators in place of temporary diesel power generators.	Significant and Unavoidable	Significant and Unavoidable
		3.4.4-1d	Construction contractors shall be required to provide management of construction traffic. The contractor shall include in the construction contracts the following requirements:	Significant and Unavoidable	Significant and Unavoidable

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			a. Contractors shall provide temporary traffic control during all phases of construction activities to improve traffic flow (i.e., flag person); b. Contractors shall configure construction parking to minimize traffic interference; c. Contractors shall schedule construction activities that affect traffic flow to off-peak hours (e.g., between 7:00 p.m. and 6:00 a.m. and between 10:00 a.m. and 3:00 p.m.); d. Contractors shall reroute construction traffic off congested streets; e. Contractors shall provide dedicated turn lanes for movement of construction equipment on- and off-site. f. Employ construction activity management techniques, such as: extending the construction period outside the ozone season of May through October; reducing the number of pieces used simultaneously; increasing		

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			the distance between emission sources; reducing or changing the hours of construction; and scheduling activity during off-peak hours. g. Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service.		
		3.4.4-1e	Construction contracts shall require contractors to implement ridesharing programs for construction employees traveling to and from the site. This requirement shall be included as a note in all project construction plans. The trip reduction plan is to achieve 1.5 AVR for construction employees.	Significant and Unavoidable	Significant and Unavoidable
3.4.4-2	Construction activities could result in release of naturally-occurring asbestos.	3.4.4-2	The applicant will be required to comply with the statewide Asbestos Airborne Toxic Control Measure for Construction,	Potentially Significant	Less Than Significant

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			Grading, Quarrying, And Surface Mining Operations. Prior to approval of a tentative map, an implementation plan to comply with this ATCM should be developed and approved.		
3.4.4-3	Operation of the proposed Forest Ranch project will result in the generation of both mobile and stationary source air pollutants.	3.4.4-3a	Potential effects of air pollutant emissions to the study area shall be partially mitigated by: 1) Promoting low-emission energy use by requiring residential design features that accommodate and encourage use of alternative energy sources. The following measures shall be in future project design: • All new residential fireplaces shall have propane hookups installed and the conditions of approval and CC&R's for the project shall explicitly forbid the installation of any non-EPA Phase 2 certified wood burning devices or masonry	Significant and Cumulative	Significant and Cumulative

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			fireplaces within the single-family residences. Wood-burning or Pellet appliances shall not be permitted in multi-family developments. Only propane fired, fireplace appliances are permitted. The maximum particulate matter emission potential for each residence shall not exceed 7.5 grams per hour. • All new residences shall have electrical outlets at the front and back for electrical yard equipment installed. • All new residences shall have low-NOx hot water heaters per PCAPCD Rule 246 installed. 2) Promote passive solar building design and landscaping conducive to passive solar energy use, as applicable in the forested areas of the project site (i.e., building orientation in a south		

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			to southeast direction where feasible, encouraging planting of deciduous trees on western sides of structures, landscaping with drought-resistant species, and including groundcovers rather than pavement to reduce heat reflection). 3) Implementation of the following measures: • Incorporate solar heaters in residences as feasible; • Include high-efficiency heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units; and • Include energy-efficient window glazings, wall insulation, and efficient ventilation methods on all new residential units. • The project CC&R's shall prohibit gasoline-powered golf carts onsite. The project shall		

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			purchase the lowest emission maintenance vehicles and equipment commercially available for the intended application at the time of purchase and/or replacement. The CC&R's for this project shall include this requirement. • The applicant shall provide a plan for on road use of electric golf carts/neighborhood electric vehicles.. • The applicant shall provide equestrian, bicycle and pedestrian trails. • HVAC units shall be equipped with PremAir (or other manufacturer) catalyst system if available and economically feasible at the time building permits are issued. The PremAir catalyst can convert up to 70% of ground level		

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			ozone that passes over the condenser coils into oxygen. The PremAir system is considered feasible if the additional cost is less than 10 percent of the base HVAC unit. 4) In order to minimize "heat island" effects, require the developer to: • Require the use of high-albedo (low-absorptive) coatings on all roofs and other building surfaces. • Require businesses and residents to plant trees to shade buildings primarily on the west and south sides of the buildings. Use of deciduous trees (to allow solar gain during the winter) and direct shading of air conditioning systems shall be included, as applicable in the forested areas of the project site. • Require businesses to		

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			pave all parking areas with a substance with reflective attributes (albedo = 0.30 or better) similar to cement concrete. • All truck loading and unloading docks shall be equipped with one 110/208 volt power outlet for every two dock doors. Diesel trucks shall be prohibited from idling more than five minutes and must be required to connect to the 110/208 volt power to run any auxiliary equipment. Signage shall be provided.		
		3.4.4-3b	Bicycle usage shall be promoted by requiring the following: • All non-residential projects shall provide bicycle lockers and/or racks. • All non-residential projects with more than 10 employees per shift shall provide employee personal showers	Significant and Cumulative	Significant and Cumulative

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			and locker facilities. • All apartment complexes or condominiums without garages shall provide Class I bicycle storage.		
		3.4.4-3c	Transit usage shall be promoted as provided in Mitigation Measure 3.6.7. Payment of project's fair share transit fee to extend service to this area shall be provided.	Significant and Cumulative	Significant and Cumulative
		3.4.4-3d	The project applicant shall implement an offsite mitigation program to offset the project's increase in Nitrogen Oxide, Reactive Organic Gas and Particulate Matter emissions. The applicant's offsite mitigation program must be approved by the Placer County Air Pollution Control District. In lieu of the applicant implementing their own offsite mitigation program, the applicant can choose to participate in the Placer County Air Pollution District Offsite Mitigation Program by applying an equivalent amount into the District program.	Significant and Cumulative	Significant and Cumulative

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3.4.4-4	Exposure of persons to odors from on-site wastewater treatment system operations and the equestrian center.	3.4.4-4a	The specific design and location of all wastewater collection and treatment facilities, effluent storage ponds and land disposal areas shall be reviewed and approved by the Placer County Environmental Health Division prior to construction. Wastewater collection and treatment facilities shall be constructed with odor containment, ventilation and scrubbing systems so that odors cannot be detected beyond the plant boundary. Emergency storage ponds shall be equipped with aerators and washdown facilities to control odor emissions. The Environmental Health Division may require certain wastewater collection and treatment equipment and facilities to be covered, if determined necessary to assure optimum odor control	Potentially Significant	Less than Significant
		3.4.4-4b	The wastewater treatment facility and the equestrian center shall be subject to PCAPCD Nuisance Rule (Rule 205):	Potentially Significant	Less Than Significant

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			A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which have a natural tendency to cause injury or damage to business or property.		
		3.4.4-4c	At such time as an application is submitted for the equestrian center, conditions of approval shall be developed that address and control odors, including but not limited to a restriction on the maximum number of horses, specific design and location of facilities to reduce odor potential, and operating conditions for the regular maintenance of facilities and the removal of animal waste.	Potentially Significant	Less Than Significant
3.5 Cultural Resources					
3.5.1	Potential project-related effects on prehistoric or historic archaeological	3.5.1a	Prior to any project-related ground disturbance, an archaeological	Potentially Significant	Less than Significant

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	sites on the project site.		field survey shall be conducted by professional archaeologists of the affected area, incorporating a systematic mixed reconnaissance strategy. Work shall be conducted according to the guidelines established by the State of California, Office of Historic Preservation. Artifacts, features and sites encountered shall be formally recorded on State of California archaeological forms. Findings shall be presented in a final report and presented to the County summarizing the natural and cultural setting and detailing the prefield and field methods employed, survey results, potential heritage resource significance, project impacts, and proposed mitigation measures required to be implemented.		
		3.5.1b	Prior to modification or destruction of an identified site, field-related mitigation activities shall be implemented in consultation with appropriate federal, state and local agencies and Native American groups.	Potentially Significant	Less than Significant

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			Mitigation measures can include project modification designed to protect and/or avoid a site. In lieu of project modification, a data recovery program can involve archival research, photo documentation and mapping, removal of a historic feature, collection of artifacts, recordation of features, test excavations, larger scale excavations, or some combination of these tasks, consistent with Section 15126.4 of the CEQA Guidelines. Interpretive development of heritage remains enhances resource protection, public education and enjoyment and may also be used as mitigation.		
		3.5.1c	Archaeological investigations shall be conducted in consultation with the Foresthill Divide Historical Society and the Todd's Valley Miwok-Maidu Cultural Foundation.	Potentially Significant	Less than Significant
		3.5.1d	To affirm the role of local Maidu and Miwok people as partners in the interpretation of their own	Potentially Significant	Less than Significant

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			archaeological past, a representative of local Native American interests shall be formally retained as a Native American consultant for future archaeological field surveys.		
3.5.2	Potential impacts to natural resources of importance to contemporary Native Americans, such as traditional plants.	3.5.2a	As part of an effort to sustain traditional cultural practices, portions of the project site that could be set aside for the harvest and management of traditional plants by Maidu and Miwok traditionalists and agreement for access shall be investigated. If indicated by the studies, future tentative maps shall include dedicated easements or other mechanism to allow access. Additional work shall involve an ethnobotanical survey, combining the skills of a project ethnobotanist and a Native American plant specialist, to locate and document traditional plant populations and to identify attributes sought and cultured by Maidu and Miwok collectors. Maidu and Miwok involvement in project revegetation efforts shall also be solicited.	Potentially Significant	Less than Significant

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		3.5.2b	To insure the integrity of traditional plant resources and enhance their Native management, issues such as the application of herbicides, controlled burning, and dust abatement shall be considered in consultation with members of the Todd's Valley Miwok-Maidu Cultural Foundation.	Potentially Significant	Less than Significant
3.5.3	Cumulative impacts to Native American sites on the Foresthill Divide.	3.5.3a	Interpretive signs and panels, designation of natural-cultural areas, and the establishment of heritage demonstration sites shall be incorporated into plans for the Forest Ranch project.	Potentially Significant	Less than Significant
		3.5.3b	Project proponents shall enter an agreement with the Todd Valley Miwok-Maidu Cultural Foundation to provide funding for support of Foundation work directed at preserving and interpreting cultural resource sites on the Foresthill Divide. Such funding shall be based on the identification of a specific project that bears a relationship to the Forest Ranch area. Any agreement shall be subject to review and approval by the County of Placer.	Potentially Significant	Less than Significant

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3.6 Circulation/Transportation					
3.6.1	Development of the proposed project is anticipated to result in substantial increases in traffic volumes and deterioration in Level of Service on study area roadways under Existing Plus Project conditions.	3.6.1a	"Fair Share" traffic mitigation fees shall be paid in order to provide sufficient funding for roadway improvements necessary to maintain the Level of Service "C" on Foresthill roadways.	Potentially Significant	Less than Significant
		3.6.1b	A center two-way left turn on Foresthill Road from the Todd's Valley area through the downtown area is recommended as it will improve traffic flow during peak periods. This center two way left turn will improve safety by providing left turning motorists a refuge area to wait for the next available gap out of the through traffic flow on Foresthill Road, thus allowing through traffic to continue its progression. Installation of this improvement may also result in less rear end accidents that could be avoided by providing left turning motorists a refuge area out of the thru travel lane.	Potentially Significant	Less than Significant
3.6.2	Need for new traffic signals in the Foresthill community as a result of the	3.6.2	Fair share payments shall be made toward the installation of traffic	Potentially Significant	Less than Significant

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	proposed project under Existing Plus Project conditions.		signals or other improvements when signal warrants are met. If traffic signals become necessary on Foresthill Road, utilize control mechanisms that minimize the delay of through traffic, especially during non-commute hours.		
3.6.3	Development of the proposed project is anticipated to result in substantial increases in traffic volumes and deterioration in Level of Service on study area roadways under Future Plus Project conditions.	3.6.3a	"Fair Share" traffic mitigation fees shall be paid in order to provide sufficient funding for roadway improvements necessary to maintain the Level of Service "C" on Foresthill roadways or the project reduced in size in order to maintain Level of Service "C."	Potentially Significant	Less than Significant
		3.6.3b	The Specific Plan shall identify a mechanism to require periodic review of the amount of off-site retail and office uses that are being constructed. In the event that the off-site development anticipated in this analysis does not occur, the Specific Plan shall be modified to include phasing of future development on the site that restricts the development of residential units, linking this development to the corresponding development of additional	Potentially Significant	Less than Significant

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			commercial/retail and/or to include the payment of additional mitigation fees to cover the costs of additional transportation improvements.		
3.6.4	Need for new traffic signals in the Foresthill community as a result of the proposed project under Future Base Conditions and Future Plus Project conditions.	3.6.4a	Fair share payments shall be made toward the installation of traffic signals or other improvements when signal warrants are met. If traffic signals become necessary on Foresthill Road, utilize control mechanisms that minimize the delay of through traffic, especially during non-commute hours.	Potentially Significant	Less than Significant
		3.6.4b	The Specific Plan shall identify a mechanism to require periodic review of the amount of off-site retail and office uses that is being constructed. In the event that the off-site development anticipated in this analysis does not occur ,the Specific Plan shall be modified to include phasing of future development on the site that restricts the development of residential units, linking this development to the corresponding development of additional	Potentially Significant	Less than Significant

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			commercial/retail and/or to include the payment of additional mitigation fees to cover the costs of additional transportation improvements.		
3.6.5	Potential decrease in the Level of Service at four key intersections in the vicinity of the I-80/Auburn Ravine Road/Foresthill Road interchange as well as the freeway facilities at that interchange under Existing Plus Project conditions.		No mitigation measures are required.	Less than Significant	
3.6.6	Potential decrease in the Level of Service at four key intersections in the vicinity of the I-80/Auburn Ravine Road/Foresthill Road interchange as well as the freeway facilities at that interchange under Cumulative + Project conditions.		No mitigation measures are required.	Less than Significant	
3.6.7	Need for additional or modified transit service as a result of the proposed project.	3.6.7	One or more sheltered transit stops shall be provided within the project site as a condition of approval of residential development of 100 units or more. The Placer County Public Works Department shall determine the appropriate number and location	Potentially Significant	Less than Significant

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			of sheltered transit stops.		
3.6.8	Need for additional park and ride spaces as a result of the proposed project.	3.6.8	The project shall provide a public carpool parking facility. Such a lot shall be centrally located to be serviced by transit. This facility shall also be utilized for overflow parking and staging areas for community events. This facility shall be provided as a condition of approval of residential development of 100 units or more. The appropriate location and design of the facility shall be determined by the Placer County Public Works Department.	Potentially Significant	Less than Significant
3.6.9	Need for additional pedestrian and bikeway facilities as a result of the proposed project.	3.6.9a	The Specific Plan shall delineate bikeways and trails on the project site. The project shall contribute its fair share to implement the policies in the draft Foresthill Divide Community Plan.	Potentially Significant	Less Than Significant
		3.6.9b	Separate easements within the project site shall be shown on any proposed tentative maps and shall include space for a five-foot multi-purpose roadside trail, or equivalent off-road trail network	Potentially Significant	Less Than Significant

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			to enable children, equestrians, bicyclists, and pedestrians to safely circulate throughout the development.		
3.7 Noise					
3.7.1	Development within the project area will generate increased traffic noise on the local roadway system.	3.7.1a	The extent by which various land uses will be affected by increases in traffic noise levels associated with the development of the region will vary depending on the proximity of those uses to the roadways in question and the individual sensitivities of those uses to noise. Because the increase in traffic noise levels along Foresthill Road would affect existing noise sensitive land uses (primarily residences) which are already located adjacent to Foresthill Road, the only way to practically reduce noise levels at those locations would be to construct noise barriers between the roadway and the residences, or to repave the roadways in question with noise-reducing asphalt. The construction of solid noise barriers could reduce traffic noise levels at	Potentially Significant	Less than Significant

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			the nearest noise sensitive receptors to the roadways. However, barriers may not be feasible, as access to the residences is from the roadway. The use of alternative roadway pavements such as rubberized asphalt or open gap asphalt have been shown to reduce overall traffic noise levels by approximately 3 dB to 5 dB, and repaving of the affected roadway segments or payment of fair share fees towards these road improvements shall be required prior to issuance of the first certificate of occupancy.		
		3.7.1b	A detailed analysis of traffic noise levels shall be required for tentative subdivision maps for proposed residences adjacent to Foresthill Road and Yankee Jim's Road. The noise analysis will be required to incorporate mitigation measures which would reduce noise impacts at proposed residences to a less than significant level.	Potentially Significant	Less than Significant
3.7.2	Activities associated with construction	3.7.2	Construction activities shall be	Potentially	Less than

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	will result in elevated noise levels within the immediate area.		restricted to the daytime hours of operation, when possible. All equipment shall be fitted with factory equipped mufflers and in good working order.	Significant	Significant
3.7.3	Activities associated with maintenance of the proposed golf course could result in noise levels which may be annoying at proposed new residences adjacent to the golf course.	3.7.3	All maintenance equipment shall be kept in good working order and fitted with mufflers. In addition, all future residents which purchase property adjacent to the proposed golf course shall sign a disclosure which fully identifies that noise levels associated with golf course maintenance will occur. The golf course operator shall schedule maintenance of those areas abutting residences in a sensitive manner.	Potentially Significant	Less than Significant
3.7.4	Noise generated by the 100-space recreational vehicle park may result in noise levels which exceed acceptable standards at nearby residential uses.	3.7.4	To reduce adverse public reaction to nighttime generator noise, no generators shall be allowed to operate between the hours of 9:00 p.m. and 7:00 a.m. In addition, if the RV park is located within 500 feet of any existing or proposed residential uses, a detailed analysis of noise impacts shall be conducted when a detailed site	Potentially Significant	Less than Significant

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			plan for the RV park is available, and additional mitigation measures shall be implemented in accordance with the recommendations of the acoustical analysis.		
3.7.5	Noise generated by the wastewater treatment plant may result in noise levels which exceed acceptable standards at nearby residential uses.	3.7.5	Wastewater treatment plant pumping equipment which may operate during the nighttime hours shall not exceed an hourly average noise level of 40 dBA Leq at the project property line or at adjacent residential property lines. Routine testing of emergency generator(s) shall be conducted during daytime periods. Emergency generators shall not exceed an hourly average noise level of 50 dBA Leq at the project property line or at adjacent residential property lines.	Potentially Significant	Less than Significant
3.8 Health and Safety					
3.8.1	Risk of upset associated with operation of the wastewater treatment facility.	3.8.1a	The wastewater treatment plant shall be designed to incorporate redundancy of treatment systems.	Potentially Significant	Less than Significant
		3.8.1b	Chlorine gas shall not be used for disinfection. Alternative processes such as use of sodium	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			hypochlorite or ultraviolet radiation shall be used.		
		3.8.1c	Emergency storage pond(s) shall be incorporated in the wastewater treatment plant design to allow for emergency storage of untreated effluent	Potentially Significant	Less than Significant
		3.8.1d	A diesel standby generator shall be provided for use in the event of a power failure.	Potentially Significant	Less than Significant
3.8.2	Potential to encounter contaminated site(s) on the project site.	3.8.2	A Phase I Environmental Site Assessment shall be conducted for the project site and submitted prior to approval of the first tentative subdivision map, conditional use permit or minor use permit. If recommended by the Phase I, a Phase II Environmental Site Assessment shall be prepared. Should any contamination be discovered, remediation shall be undertaken and completed in accordance with federal, State, and local regulations prior to any development of the project site.	Significant	Less than Significant
3.8.3	Increased exposure of people and	3.8.3a	Vegetation shall be modified	Potentially	Less than

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
	property to wildfire hazards on the project site due to the proposed Forest Ranch project.		around new structures to reduce radiant heat along fire escape routes.	Significant	Significant
		3.8.3b	The project applicants shall submit a fire safety plan that provides for (1) increased safety for emergency fire equipment and evacuating residents and visitors; (2) a point of attack or defense from a wildfire; and (3) strategic siting of fuel breaks, fire breaks, and greenbelts.	Potentially Significant	Less than Significant
		3.8.3c	Conditions of approval for tentative subdivision maps, conditional use permits and minor use permits shall include requirements for a fire safe community, defensible space fire-resistant vegetation, cleared fire breaks and fuel breaks, and a long-term comprehensive fuel management program.	Potentially Significant	Less than Significant
		3.8.3d	Fuel breaks shall be provided along the perimeter of the project site, and fire access roads shall be provided within the project site, at locations subject to the approval of	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			the Foresthill Fire Protection District.		
		3.8.3e	A County Service Area, Zone of Benefit under CSA #28, community services district, expansion of powers of the Foresthill P.U.D., assessment district, or other entity for sustainable fuel break and fire access road maintenance shall be formed or completed prior to recordation of the first final subdivision map. A fuel break maintenance tax or assessment with a provision for increases indexed to the Consumer Price Index shall be approved by the landowners (voters) of the project site, to be developed prior to recordation of the first final subdivision map.	Potentially Significant	Less than Significant
3.8.4	Increased exposure of people and property to geologic hazards on the project site due to the proposed Forest Ranch project.	3.8.4a	A preliminary geotechnical engineering investigation prepared by a licensed civil engineer and consistent with the requirements of the Placer County Grading, Erosion, and Sediment Control Ordinance shall be submitted with	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			the Specific Plan. A more detailed geotechnical engineering investigation prepared by a licensed civil engineer and consistent with the requirements of the Placer County Grading, Erosion and Sediment Control Ordinance shall be submitted with each Tentative Subdivision Map application within the project area. Other entitlement requests may be required to prepare project specific geotechnical investigations if findings in the Specific Plan preliminary engineering investigation indicates a need.		
		3.8.4b	If landslide hazard areas are identified on the project site, they shall be avoided. Alteration of land in a manner that could increase the hazard shall be prohibited, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes.	Potentially Significant	Less than Significant
		3.8.4c	Drainage plans for the project site	Potentially	Less than

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			shall direct runoff and drainage away from unstable slopes.	Significant	Significant
		3.8.4d	The location and/or design of new buildings, facilities, and other development in areas subject to earthquake activity shall minimize exposure to danger from fault rupture or creep.	Potentially Significant	Less than Significant
		3.8.4e	Any new structure proposed to be located in an area of high liquefaction potential shall be sited, designed, and constructed to minimize the dangers from damage due to earthquake-induced liquefaction.	Potentially Significant	Less than Significant
		3.8.4f	Development in areas of steep or unstable slopes shall be limited to minimize hazards caused by landslides or liquefaction.	Potentially Significant	Less than Significant
		3.8.4g	Erosion and ground instability mitigation measures shall include conformance to the Uniform Building Code and Placer County's Grading, Erosion and Sediment Control Ordinance. The required designs shall include	Potentially Significant	Less than Significant

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			methods to control soil erosion and ground instability. Measures to control soil erosion and mitigate potential differential settlement and construction related ground instability impacts include, but are not limited to: 1. Prohibit the placement of habitable structures or individual sewage disposal systems on or in critically expansive soils. 2. In landslide hazard areas, prohibit avoidable alteration of land in a manner that could increase the hazard, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes. 3. Limit development in areas of steep (in excess of 30%) or unstable slopes, or slope breaks to minimize hazards		

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			caused by landslides, liquefaction, construction undercutting or vegetation loss. 4. Septic leachfields and drainage plans shall direct runoff and drainage away from steep and/or unstable slopes. A California licensed Civil Engineer shall prepare and submit to the Department of Public Works a grading plan and erosion control plan (winterization/ground instability plan) for new development projects prior to any environmental review determination.		
3.8.5	Exposure of people to hazards associated with abandoned mines on the project site.	3.8.5a	All visible mine entrances, shafts and tunnels shall be secured to prevent entry. Site hazards shall be assessed in accordance with The Department of Toxic Substance Control Handbook, "Abandoned Mine Lands Preliminary Assessment."	Potentially Significant and Unavoidable	Potentially Significant and Unavoidable
		3.8.5b	All known mine features for each	Potentially	Potentially

Impact No.	Impact	Mitigation No.	Mitigation Measure	Level of Significance	
				Before Mitigation	After Mitigation
			project area shall be mapped or described and disclosed at the time of submittal of each tentative subdivision map, conditional use permit or minor use permit.	Significant and Unavoidable	Significant and Unavoidable
		3.8.5c	The Specific Plan shall include a map identifying past mining activity sites and shall include specific site management strategies to address issues related to abandoned mines including safety and the potential for groundwater contamination.	Potentially Significant and Unavoidable	Potentially Significant and Unavoidable

Forest Ranch
General Plan Amendment and Rezoning
Draft Environmental Impact Report
Appendices
SCH #2001122105



Prepared for:
Placer County Planning Department

Prepared by:
Quad Knopf, Inc.

Quad Knopf

01576

Forest Ranch
General Plan Amendment and Rezoning
Draft Environmental Impact Report
Appendices
SCH #2001122105



Prepared for the Lead Agency:
Placer County Planning Department
11414 "B" Avenue
Auburn, CA 95603
Contact: Mike Wells, Senior Planner
(530)886-3000

Prepared by:
Quad Knopf, Inc.
One Sierragate Plaza, Suite 270C
Roseville, CA 95678
Contact: Roberta MacGlashan, AICP
(916) 784-7823

Quad Knopf

01576

Appendix A

NOTICE OF PREPARATION

TO: State Clearinghouse
Responsible Agencies
Trustee Agencies
Interested Parties

SUBJECT: **Notice of Preparation of a Draft Environmental Impact Report**

LEAD AGENCY: Placer County Planning Department
11414 "B" Avenue, Auburn, CA 95603
(530) 889-7470 (530) 889-7499 FAX

CONTACT: Lori Lawrence, Environmental Review Clerk

The Placer County Planning Department will be the Lead Agency and will prepare an Environmental Impact Report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, vicinity map, project site plan and/or elevations, brief description of the probable environmental effects, project application, and Initial Study are contained in the attached materials.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but **not later than January 28, 2002.**

Please send your response to **Lori Lawrence, Placer County Planning Department** at the address indicated above. We request the name of a contact person for your agency.

Project Title: **Forest Ranch (EIAQ-3656)**

Project Applicant: **Forest Ranch Associates, c/o Don Ryan, et al**

Date: 12/20/01 Signature: Dean Prigmore

Title: Asst. Director of Planning

Reference: *California Code of Regulations, Title 14 (CEQA Guidelines) Sections 15082(a), 15103, 15375*

PLACER COUNTY PLANNING DEPARTMENT
11414 "B" Avenue, Auburn, CA 95603
(916) 889-7470 FAX (916) 889-7499

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PLANNING DEPT.

INITIAL PROJECT APPLICATION

Accepted by RL ---OFFICE USE ONLY--- File #'s EIAQ-3656
Current Zoning TPZ, RFBX160AC, Z.MAP# 21, 35B, 35A
Applicable General/Community Plan: FCP
G.P. Designation PUBLIC, R.R.
Geographical Area CENTRAL
Environmental Determination:
___ Categorically Exempt Exemption Section #_____
___ Negative Declaration
___ EIR Name of EIR _____ SCH #_____
Date Project Application Accepted as Complete _____
Date Filed 11/1/01
Hearing Body PC
Sphere of Influence NO
Tax Rate Area 011 002 & 012
Notes: Taxes OK (Senior citizen postponement) OVERFLIGHT NO

TO BE COMPLETED BY THE APPLICANT

1. Project Name (current and previous): **Forest Ranch**
2. Property Owner: **Don Ryan, et.al**

   Address: **1735 Crockett Lane, Hillsborough, CA 94010**

   Telephone Number **(650) 344-6123** Fax Number: **(650) 344-2047**
3. Applicant: **Forest Ranch Associates**
   Address: **1735 Crockett Lane, Hillsborough, CA 94010**
   E-Mail Address:
   City State Zip
   Telephone Number: **(650) 344-6123** Fax Number: **(650) 344-2047**
4. Size of Property (acreage or square footage): **2615±AC.**
5. Assessor's Parcel Number(s): **See attached list**
6. Project Location: **North and East of Foresthill**
   (Be specific: cross streets, distance and direction from nearest intersection, etc.)
7. What actions, approvals, or permits by Placer County does the proposed project require?
   - X General Plan Amendment *
   - X Rezoning
   - ____ Conditional Use Permit
   - ____ Minor Use Permit
   - ____ Variance
   - ____ Certificate of Compliance
   - ____ Extension of Time
   - ____ Other Explain:
   - ____ Major Subdivision (Tentative Map Approval)
   - ____ Minor Subdivision (Parcel Map Approval)
   - ____ Design Review
   - ____ Administrative Review Permit
   - ____ Project Undertaken by County
   - ____ Minor Boundary Adjustments
   - ____ Additional Building Site

   ***Amend the 1981 Foresthill General Plan**
8. Does the proposed project need approval by other governmental agencies?
   ____Yes XX No. If so, which agencies?
9. Which agencies, utility companies provide the following services?
   IMPORTANT! - THIS INFORMATION MUST BE ACCURATE.
   Electricity: **P G & E** Natural Gas: **N/A**
   Fire Protection: **CDF & Foresthill Volunteer F.D.** Water: **Foresthill P.U.D.**
   Sewer: Telephone: **Foresthill Telephone Co.**
   High School: **Placer Union High School District** Elementary School: **Foresthill Union Elementary S.D.**

   ****Current method of sewage disposal would be by on-site septic systems. With ultimate development, project will provide community treatment system.**

PROJECT DESCRIPTION

10. Describe the project in detail so that a person unfamiliar with the project would understand the purpose, size, phasing, duration, and construction activities associated with the project. In response to this question, please attach additional pages if necessary.

SEE ATTACHED PROJECT DESCRIPTION

11. Owner Authorization

I hereby authorize the above-listed applicant to make application for project approvals by Placer County, to act as my agent regarding the above-described project, and to receive all notices, correspondence, etc. from Placer County regarding this project.

Signature(s) of Owner(s) — Please Print

Don Ryan

Forestville Associates

If Boundary Line Adjustment, signature of both transferring and acquiring property owners are needed. Boundary Line Adjustments shall not be used to create new parcels.

Signature of Transferring Property Owner — Please Print

Signature of Acquiring Property Owner — Please Print

As owner, I will be acting as applicant: _____

NOTICE: This project may be subject to fees imposed by the Department of Fish and Game. (Fish and Game Code, Section 711.4 et. seq.; Public Resources Code, Section 10005) Unless a project is denied, no action which requires payment of fees shall be deemed final until such fees are paid (Section 21089(b) of the Public Resources Code).

NOTE: Pursuant to the policy of the Board of Supervisors, the Planning Department cannot accept applications on tax delinquent property. Applications submitted on properties which contain zoning violations may also be rejected by the County.

---OFFICE USE ONLY---

Date: Notes/Comments

RECEIVED
NOV 01 2001
PLANNING DEPT.

FOREST RANCH

PROJECT DESCRIPTION

The Forest Ranch project is a planned residential development on 2,615 acres located north and east of the Community of Foresthill. This area is proposed as a recreation and residential development. With adoption of the proposed General Plan amendment and rezoning requests, the Forest Ranch project would generally include the following features.

Residential Uses:	2213 residential units, of which approximately 1700 would be age restricted (55 years of age and older). Approximately 524 units of the 2213 units are currently accommodated under the existing Foresthill General Plan and Zoning Regulations. A mixture of housing options will be provided from town homes to rural residential parcels. Affordable housing units will be provided in accordance with County policy.
Recreational Uses:	An 18-hole golf course, clubhouse and other recreational facilities generally associated with a golf course/retirement community (eg. Restaurants, meeting rooms, swimming pool, driving range,etc.).
Office and Professional:	Approximately 5 acres will be set aside for office and professional uses.
Recreational Vehicle Park:	A 100-unit recreational vehicle park.
Equestrian Center:	An equestrian center to provide for the boarding of horses and a staging area for project's equestrian trail system.
Open Space:	Approximately 1,128 acres, 43% of the project site, will be maintained as open space areas to protect sensitive habitats and slopes and to provide project buffering.

Major infrastructure improvements including a wastewater treatment facility (built and operated to California State Water Resources Control Board Standards), water system and road improvements will be constructed by the project.

General Plan Amendment and Rezoning

In conjunction with the update of the Foresthill General Plan, the Forest Ranch property owner proposes land use and zoning designations to accommodate the Forest Ranch project. Rezoning action related to properties currently zoned TPZ would take place in 2003.

Proposed General Plan and zoning designations are shown on the attached exhibits.

7872-01
TLT/kk
10/23/01

(TPZ PARCELS)	ACREAGE
007-010-05	145.70
007-020-03	165.20
007-020-14 (POR.)	94.20
007-020-15	43.10
007-030-03	74.30
007-200-02	310.80
007-210-01	5.10
007-210-15	141.10.
007-220-54	4.10
064-090-15	118.70
064-090-17	4.50
064-090-81	803.60
064-280-11	114.50
Sub-Total TPZ Acreage (APX)	**2024.90**

(NON-TPZ PARCELS)	
007-010-03	3.70
007-020-04	0.80
007-030-08	2.50
007-080-04	2.40
007-090-01	0.84
007-190-01	252.14
007-200-03	9.20
007-210-06	1.00
007-210-16	2.40
007-210-18	150.70
007-220-05	1.91
007-220-07	23.10
007-220-55	57.70
064-090-19	37.40
064-090-33	1.00
064-090-34	6.30
064-280-12	21.60
254-010-02	16.00
Sub-Total Non-TPZ Acreage (APX)	**590.69**

TOTAL ACREAGE **2615.59**

7872-01
TLT/kk
10-31-01

PLACER COUNTY PLANNING DEPARTMENT

11414 B Avenue/Auburn, California 95603/Telephone (530) 889-7470/FAX (530) 889-7499
Web Page: http://www.placer.ca.gov/planning E-Mail: ljlawren@placer.ca.gov

INITIAL STUDY

In accordance with the policies of the Placer County Board of Supervisors regarding implementation of the California Environmental Quality Act, this document, combined with the attached "Environmental Analysis" discussion form and supporting data, constitutes the Initial Study on the proposed project. This Initial Study provides the basis for the determination whether the project may have a significant effect on the environment. If it is determined that the project may have a significant effect on the environment, an Environmental Impact Report will be prepared which focuses on the areas of concern identified by this Initial Study.

I. BACKGROUND

Title of Project: **Forest Ranch** EIAQ #3656

II. EVALUATION OF ENVIRONMENTAL IMPACTS:

A. A brief explanation is required for all answers except "No Impact" answers.

B. "Less Than Significant Impact" applies where the project's impacts are negligible and do not require any mitigation to reduce impacts.

C. "Potentially Significant Unless Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The County, as lead agency, must describe the mitigation measures, and briefly explain how they reduce the effect to a less-than-significant level (mitigation measures from Section IV, EARLIER ANALYSES, may be cross-referenced).

D. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

E. All answers must take account of the entire action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts [CEQA, Section 15063(1)].

F. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or Negative Declaration [Section 15063(c)(3)(D)]. Earlier analyses are discussed in Section IV at the end of the checklist.

G. References to information sources for potential impacts (e.g., general plans/community plans, zoning ordinances) should be incorporated into the checklist. Reference to a previously prepared or outside document should include a reference to the pages or chapters where the statement is substantiated. A source list should be attached, and other sources used, or individuals contacted, should be cited in the discussion.

H. This checklist has been adapted from the form in Appendix I of the State CEQA Guidelines, as amended effective September 19, 1994.

ENVIRONMENTAL ISSUES *(see attachments for information sources)*	No Impact	Less Than Significant Impact	Potentially Significant Unless Mitigation Incorporated	Potentially Significant Impact
1. LAND USE AND PLANNING. Would the proposal:				
a. Conflict with general plan/community plan/specific plan designation(s) or zoning, or policies contained within such plans?	☐	☐	☐	☒
b. Conflict with applicable environmental plans or policies adopted by responsible agencies with jurisdiction over the project?	☐	☐	☐	☒
c. Be incompatible with existing land uses in the vicinity?	☐	☐	☐	☒
d. Affect agricultural and timber resources or operations (e.g., impacts to soils or farmlands and timber harvest plans, or impacts from incompatible land uses)?	☐	☐	☐	☒
e. Disrupt or divide the physical arrangement of an established community (including a low-income or minority community)?	☐	☒	☐	☐
f. Result in a substantial alteration of the present or planned land use of an area?	☐	☐	☐	☒
2. POPULATION AND HOUSING. Would the proposal:				
a. Cumulatively exceed official regional or local population projections?	☐	☐	☐	☒
b. Induce substantial growth in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	☐	☐	☐	☒
c. Displace existing housing, especially affordable housing?	☐	☒	☐	☐
3. GEOLOGIC PROBLEMS. Would the proposal result in or expose people to potential impacts involving:				
a. Unstable earth conditions or changes in geologic substructures?	☐	☐	☐	☒
b. Significant disruptions, displacements, compaction or overcovering of the soil?	☐	☐	☐	☒
c. Substantial change in topography or ground surface relief features?	☐	☐	☐	☒
d. The destruction, covering or modification of any unique geologic or physical features?	☐	☐	☐	☒
e. Any significant increase in wind or water erosion of soils, either on or off the site?	☐	☐	☐	☒
f. Changes in deposition or erosion or changes in siltation which may modify the channel of a river, stream, or lake?	☐	☐	☐	☒
g. Exposure of people or property to geologic and geomorphological (i.e. avalanches) hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?	☐	☐	☐	☒
4. WATER. Would the proposal result in:				
a. Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	☐	☐	☐	☒
b. Exposure of people or property to water related hazards such as flooding?	☐	☐	☐	☒
c. Discharge into surface waters or other alterations of surface water quality (e.g., temperature, dissolved oxygen, or turbidity)?	☐	☐	☐	☒

ENVIRONMENTAL ISSUES *(see attachments for information sources)*	No Impact	Less Than Significant Impact	Potentially Significant Unless Mitigation Incorporated	Potentially Significant Impact
d. Changes in the amount of surface water in any water body?	☐	☐	☐	☒
e. Changes in currents, or the course of direction of water movements?	☐	☐	☐	☒
f. Change in the quantity of groundwater, either through direct additions of withdrawals, or through interception of an aquifer by cuts or excavations, or through substantial loss of groundwater recharge capability?	☐	☐	☐	☒
g. Altered direction or rate of flow of groundwater?	☐	☒	☐	☐
h. Impacts to groundwater quality?	☐	☐	☐	☒
i. Substantial reduction in the amount of groundwater otherwise available for public water supplies?	☐	☒	☐	☐
j. Impacts to the watershed of important surface water resources, including but not limited to, Lake Tahoe, Folsom Lake, Hell Hole Reservoir, Rock Creek Reservoir, Sugar Pine Reservoir, French Meadows Reservoir, Combie Lake, and Rollins Lake?	☐	☐	☐	☒
5. AIR QUALITY. Would the proposal:				
a. Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☐	☒	☐
b. Expose sensitive receptors to pollutants?	☐	☐	☒	☐
c. Have the potential to increase localized carbon monoxide levels at nearby intersections in exceedance of adopted standards?	☐	☐	☒	☐
d. Create objectionable odors?	☐	☐	☒	☐
6. TRANSPORTATION/CIRCULATION. Would the proposal result in:				
a. Increased vehicle trips or traffic congestion?	☐	☐	☐	☒
b. Hazards to safety from design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
c. Inadequate emergency access or access to nearby uses?	☐	☐	☐	☒
d. Insufficient parking capacity on-site or off-site?	☐	☐	☐	☒
e. Hazards or barriers for pedestrians or bicyclists?	☐	☐	☒	☐
f. Conflicts with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☒	☐
g. Rail, waterborne, or air traffic impacts?	☒	☐	☐	☐
7. BIOLOGICAL RESOURCES. Would the proposal result in impacts to:				
a. Endangered, threatened or rare species or their habitats (including, but no limited to plants, fish, insects, animals, and birds)?	☐	☐	☐	☒
b. Locally occurring natural communities (e.g., oak woodlands, mixed conifer, annual grasslands, etc.)?	☐	☐	☐	☒

SUPPLEMENTAL RESPONSE

TRANSPORTATION/CIRCULATION

Retirement Community

From a transportation point of view, the Forest Ranch active retirement community compliments the bedroom community nature of the of the Foresthill community. Similarly situated active retirement communities in Arizona have shown that retirees have only a 10% likelihood of traveling outside of the local community on any given trip. Not surprisingly, very few of those trips are made during the commute periods. For example, less than 3% of trips are initiated during the peak morning commute hour of 7AM to 8AM.[1]

Further mitigating the effect of the few additional vehicles during the peak periods are the re-designation of 11 of the 524 existing zoned units to age restricted and the fact that the retirement community will generate significant direct local employment. Without the possibility of local employment, these Foresthill residents would have to commute off the hill for work. The net impact of the Forest Ranch project is to remove traffic from the Auburn Foresthill road during peak periods.

While there may be an increase in traffic on the Auburn Foresthill road during the off peak period, there are no known off peak constraints.

Roughly half of all trips made by residents of the Forest Ranch retirement community can be expected to have both origination and destination points within the project zone. There will be an increase in the number of vehicles in the town of Foresthill as the retirees use local services. To the extent that the retirement community stimulates secondary commercial opportunities, residents of Todd Valley will also be encouraged to use the facilities in Foresthill rather than shopping off the hill (further reducing the use of the main Auburn Foresthill artery).

Golf Course

The presence of local employment will provide local residents with an alternative to commuting to Auburn. To the extent that these opportunities are taken, traffic on the Auburn Foresthill Road will be reduced (especially during peak commute periods).

Most golf course patrons will be local residents. Those who travel from outside the area are expected to have no impact on peak hour conditions on the Auburn Foresthill road.

Recreation Vehicle Park

A minor increase in recreational vehicle traffic can be expected on both the Auburn Foresthill Road and in the town of Foresthill. This traffic will tend to be seasonal (June-August), the months in which the Auburn Foresthill road experiences less peak hour congestion.[2]

1. "A Study of Travel Behavior for Retirement Communities Origin-Destination Surveys Volume I – Final Report" US Department of Commerce National Technical Information Service.
2. Data collected on Auburn-Foresthill road between mid-July and mid-September 2000 shows less peak hour traffic during the summer months.

ENVIRONMENTAL ISSUES *(see attachments for information sources)*	No Impact	Less Than Significant Impact	Potentially Significant Unless Mitigation Incorporated	Potentially Significant Impact
c. Significant ecological resources including: 1) Wetland areas including vernal pools; 2) Stream environment zones; 3) Critical deer winter ranges (winter and summer), migratory routes and fawning habitat; 4) Large areas of non-fragmented natural habitat, including but not limited to to Blue Oak Woodlands, Valley Foothill Riparian, vernal pool habitat; 5) Identifiable wildlife movement zones, including but not limited to, non-fragmented stream environment zones, avian and mammalian routes, and known concentration areas of waterfowl within the Pacific Flyway; 6) Important spawning areas for anadramous fish?	☐	☐	☐	☒
8. ENERGY AND MINERAL RESOURCES. Would the proposal				
a. Conflict with adopted energy conservation plans?	☐	☐	☒	☐
b. Use non-renewable resources in a wasteful and inefficient manner?	☐	☐	☒	☐
c. Result in the loss of availability of a known mineral resource that would be of future value to the region and state residents?	☐	☐	☐	☒
9. HAZARDS. Would the proposal involve				
a. A risk of accidental explosion or release of hazardous substances (including, but not limited to, oil, pesticides, chemicals, or radiation)?	☐	☐	☐	☒
b. Possible interference with an emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
c. The creation of any health hazard or potential health hazard?	☐	☐	☒	☐
d. Exposure of people to existing sources of potential health hazards?	☐	☐	☐	☒
e. Increased fire hazard in areas with flammable brush, grass, or trees.?	☐	☐	☐	☒
10. NOISE. Would the proposal result in				
a. Increases in existing noise levels?	☐	☐	☐	☒
b. Exposure of people to noise levels in excess of County standards?	☐	☐	☐	☒
11. PUBLIC SERVICES. Would the proposal have an effect upon, or result in a need for new or altered government services in any of the following areas				
a. Fire Protection?	☐	☐	☐	☒
b. Sheriff Protection?	☐	☐	☐	☒
c. Schools?	☐	☐	☐	☒
d. Maintenance of public facilities, including roads?	☐	☐	☐	☒
e. Other governmental services?	☐	☐	☐	☒

ENVIRONMENTAL ISSUES *(see attachments for information sources)*	No Impact	Less Than Significant Impact	Potentially Significant Unless Mitigation Incorporated	Potentially Significant Impact
12. UTLITIES AND SERVICE SYSTEMS: Would the proposal result in a need for new systems or supplies, or substantial alterations to the following utilities:				
a. Power or natural gas?	☐	☐	☐	☒
b. Communication systems?	☐	☐	☐	☒
c. Local or regional water treatment or distribution facilities?	☐	☐	☐	☒
d. Sewer, septic systems, or wastewater treatment and disposal facilities?	☐	☐	☐	☒
e. Storm water drainage?	☐	☐	☐	☒
f. Solid waste materials recovery or disposal?	☐	☐	☒	☐
g. Local or regional water supplies?	☐	☐	☐	☒
13. AESTHETICS: Would the proposal				
a. Affect a scenic vista or scenic highway?	☐	☐	☐	☒
b. Have a demonstrable negative aesthetic effect?	☐	☐	☐	☒
c. Create adverse light or glare effects?	☐	☐	☐	☒
14. CULTURAL RESOURCES: Would the proposal				
a. Disturb paleontological resources?	☐	☐	☐	☒
b. Disturb archaeological resources?	☐	☐	☐	☒
c. Affect historical resources?	☐	☐	☐	☒
d. Have the potential to cause a physical change which would affect unique ethnic cultural values?	☐	☐	☐	☒
e. Restrict existing religious or sacred uses within the potential impact area?	☐	☐	☐	☒
15. RECREATION: Would the proposal				
a. Increase the demand for neighborhood or regional parks or other recreational facilities?	☐	☐	☐	☒
b. Affect existing recreational opportunities?	☐	☐	☐	☒
III. MANDATORY FINDINGS OF SIGNIFICANCE				
A. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒
B. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☐	☒

ENVIRONMENTAL ISSUES *(see attachments for information sources)*	No Impact	Less Than Significant Impact	Potentially Significant Unless Mitigation Incorporated	Potentially Significant Impact
C. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

IV. EARLIER ANALYSIS

Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, one of more effect have been adequately analyzed in an earlier EIR or Negative Declaration [State CEQA guidelines Section 15063(c)(3)(D)]. In this case a discussion should identify the following on attached sheets.

A. **Earlier analyses used.** Identify earlier analyses and state where they are available for review.

B. **Impacts adequately addressed.** Identify which effects from the above checklist were within the scope of, and adequately analyzed in, an earlier document pursuant to applicable legal standards. Also, state whether such effects were addressed by mitigation measures based on the earlier analysis.

C. **Mitigation measures.** For effects that are checked as "Potentially Significant Unless Mitigation Incorporated," describe the mitigiation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

Authority: Public Resources Code Sections 21083 and 21087.

Reference: Public Resources Code Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 31083.3, 21093, 21094, 21151; *Sundstrom v. County of Mendocino*, 202 Cal. App. 3d 296 (1988); *Leonoff v. Monterey Board of Supervisors*, 222 Cal. App. 3d 1337 (1990).

V. OTHER RESPONSIBLE AND TRUSTEE AGENCIES WHOSE APPROVAL IS REQUIRED

☒ California Department of Fish and Game
☒ California Department of Transportation (e.g. Caltrans)
☒ California Regional Water Quality Control Board
☒ California Department of Forestry
☒ U.S. Army Corp of Engineers
☒ U.S. Fish & Wildlife Service
☒ Local Agency Formation Commission (LAFCO)
☐ California Department of Health Services
☐ California Integrated Waste Management Board
☐ Tahoe Regional Planning Agency
☒ Foresthill PUD, Foresthill Elementary School District, Placer High School District, U.S. Forest Service, U.S. BLM, U.S. Bureau of Reclamation Ca. Dept. of Parks & Rec., Ca. Office of Historic Preservation, U.S. Bureau of Indian Affairs, Ca. Division of Mines and Geology

VI. DETERMINATION (to be completed by the Lead Agency)

A. I find that the proposed project is categorically exempt (Class ____) from the provisions of CEQA. ☐

B. I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared. ☐

C. 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. ☐

D. I find that the proposed project is within the scope of impacts addressed in an previously adopted Negative Declaration, and that only minor technical changes and/or additions are necessary to ensure its adequacy for the project. An **ADDENDUM TO THE PREVIOUSLY-ADOPTED NEGATIVE DECLARATION** will be prepared. ☐

E. I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required (i.e. Project, Program, or Master EIR). ☒

F. I find that the proposed project **MAY** have a significant effect(s) on the environment, and at least one effect has not beeen adequately analyzed in an earlier document pursuant to applicable legal standards. Potentially significant impacts and mitigation measures that have been adequately addressed in an eariler document are described on attached sheets (see Section IV above). An ☐

ENVIRONMENTAL IMPACT REPORT will be prepared to address those effect(s) that remain outstanding (i.e. focused, subsequent, or supplemental EIR).

G. I find that the proposed project is within the scope of impacts addressed in a peviously certified EIR, and that some changes and/or additions are necessary, but none of the conditions requiring a Subsequent or Supplemental EIR exist. An **ADDENDUM TO THE PREVIOUSLY-CERTIFIED EIR** will be prepared. ☐

H. I find that although the proposed project could have a significant effect on the environment, all potentially signficant effects: 1) have been adequately analyzed in an earlier Community Plan EIR pursuant to applicable legal standards, and 2) have been avoided or mitigated pursuant to an earlier Community Plan EIR, including revisions or mitigation measures that are imposed upon the proposed project. The earlier Community Plan EIR adeqately analyzes that proposed project, so no additional EIR will be prepared. A **SITE SPECIFIC IMPACT STATEMENT (SSIS)** will be prepared to address project specific issues (see CEQA Section 21083.3). ☐

I. I find that the proposed project is within the scope of impacts addressed in a previously-certified Program EIR, and that no new effects will occur nor new mitigation measures are required. Potentially significant impacts and mitigation measures that have been adequately addressed in an earlier document are described on attached sheets, including applicable mitigation measures that are imposed upon the proposed project (see Section IV above.) **NO FURTHER ENVIRONMENTAL DOCUMENT** will be prepared [see CEQA Guidelines, Section 15168(c)(2)]. ☐

VII. ENVIRONMENTAL REVIEW COMMITTEE (Persons/Departments Consulted):

Dean Prigmore, Planning Department

David Price, Department of Public Works

Roger Davies, Environmental Health Services

Ann Hobbs, Air Pollution Control District

Signature: Dean Prigmore

ENVIRONMENTAL REVIEW COMMITTEE CHAIRPERSON

12/20/01

Date

T:\CMD\CMDP\EIAQ\3656\IS

PLACER COUNTY PLANNING DEPARTMENT
11414 "B" Avenue, Auburn, CA 95603
(916) 889-7470 **or** 1-800-488-4308

RECEIVED
NOV 01 2001
PLANNING DEPT.

ENVIRONMENTAL IMPACT ASSESSMENT QUESTIONNAIRE

Required maps: 20
Required applications: 20

Receipt No. 7410
Filing Fee: 855+630(MOP)

Pursuant to the policy of the Board of Supervisors, the Planning Department cannot accept applications on tax delinquent property or property with existing County Code violations.

SEE FILING INSTRUCTIONS ON LAST PAGE OF THIS APPLICATION FORM

(ALL) 1. Project Name (same as on IPA) **Forest Ranch**

PLNG 2. What is the general land use category for the project (for example, residential, commercial, agricultural, or industrial, etc.)? **Residential, Office and Professional, Recreation and Open Space**

PLNG 3. What is the number of units or gross floor area proposed? **2213 Units (524 of the units are currently provided by existing General Plan and zoning designations).**

DPW 4. Are there existing facilities on-site (buildings, wells, septic systems, parking, etc.)?
Yes__X__ No____ If yes, show on site plan and describe: **2 wells**

DPW 5. Is adjacent property in common ownership? Yes____ No__X__ Acreage_____
Assessor's Parcel Numbers **See Attached**

PLNG 6. Describe previous land use(s) of site over the last 10 years: **Timber Production**

GEOLOGY & SOILS

NOTE: Detailed topographic mapping and preliminary grading plans may be required following review of the information presented below.

DPW 7. Have you observed any building or soil settlement, landslides, slumps, faults, steep areas, rock falls, mud flows, avalanches or other natural hazards on this property or in the nearby surrounding area? Yes__X__ No____ If yes, describe:____
Some areas have slopes in excess of 30%

DPW 8. How many cubic yards of material will be imported? **N/A at this time, anticipate no import at ultimate buildout.**
Exported? **N/A at this time. Anticipate no export at ultimate buildout** Describe material sources or disposal sites, transport methods and haul routes:____**N/A**

DPW 9. What is the maximum proposed depth and slope of any excavation? **N/A**

DPW 10. Are retaining walls proposed? Yes____ No__X__. If yes, identify location, type, height, etc.:

DPW 11. Would there be any blasting during construction? Yes_____ No__X__ If yes, explain: None anticipated

DPW 12. How much of the area is to be disturbed by grading activities? **N/A at this time; at ultimate buildout 18-22% of the project area may be disturbed by grading activities.**

PLNG 13. DEH Would the project result in the direct or indirect discharge of sediment into any lakes or streams? Yes_____ No_X_ If yes, explain:_____

DPW 14. Are there any known natural economic resources such as sand, gravel, building stone, road base rock, or mineral deposits on the property? Yes__XX__ No_____ If yes, describe: **Immature timber not viable for re-harvesting for 20-30 years.**

DRAINAGE & HYDROLOGY

NOTE: **Preliminary drainage studies may be required following review of the information presented below.**

DPW 15. Is there a body of water (lake, pond, stream, canal, etc.) within or on the boundaries of the property? Yes__X__ No_____ If yes, name the body of water here and show location on site plan: **Nick Walsh Springs and associated streams.**

DEH 16. If answer to #15 is yes, would water be diverted from this water body? Yes____ No_XX_

DEH 17. If yes, does applicant have an appropriative or riparian water right? Yes_____ No____ **N/A**

DEH 18. Where is the nearest off-site body of water such as a waterway, river, stream, pond, lake, canal, irrigation ditch, or year-round drainage-way? Include name if applicable. **North Fork American River**

What percentage of the project site is presently covered by impervious surfaces?__0__ After development? **Approximately 6-10%**

DPW 19. Would any run-off of water from the project enter any off-site canal/stream? Yes__X__ **Indirectly** No_____ If answer is yes, identify: **Forks of American River**

DEH 20. Will there be discharge to surface water of waste waters other than storm water run-off? Yes_____ No__XX__ If yes, what materials will be present in the discharge? What contaminants will be contained in stormwater run-off? **N/A**

DPW 21. Would the project result in the physical alteration of a body of water? Yes_____ No_XX_

If so, how?_____ **N/A**

Will drainage from this project cause or exacerbate any downstream flooding condition? Yes_____ No_XX__ If yes, explain:

DPW 22. Are any of the areas of the property subject to flooding or inundation? Yes__XX__ No__
If yes, accurately identify the location of the 100-year floodplain on the site plan. **N/A, no residential areas.**

DPW 23. Would the project alter drainage channels or patterns? Yes_____ No__XX__ If yes,
DEH explain:_____

VEGETATION AND WILDLIFE

NOTE: **Detailed studies or exhibits such as tree surveys and wetland delineations may be required following review of the information presented below. Such studies or exhibits may also be included with submittal of this questionnaire. (See Filing Instructions #8 and #9 for further detail.)**

PLNG 24. Describe vegetation on the site, including variations throughout the property: **Predominate vegetative habitats include coniferous forest, chaparral and montane hardwood associations.**

PLNG 25. Estimate how many trees of 6-inches diameter or larger would be removed by the ultimate development of this project as proposed: **None with GPA and rezoning action. Number at ultimate development is unknown at this time.**

PLNG 26. Estimate the percentage of existing trees which would be removed by the project as proposed: **N/A at this time, with ultimate development of the Forest Ranch project 15-20% of the site's trees may be removed.**

PLNG 27. What wildlife species are typically found in the area during each of the seasons? **Deer, black bear, mountain lion and various other small mammals, reptiles and bird species.**

PLNG 28. Are rare or endangered species of plants or animals (as defined in Section 15380 of the California Environmental Quality Act Guidelines) found in the project area? **The FDCP Background Report notes that the CNDDB identifies nine special-status plant species for which suitable habitat exists in the FDCP area. In addition, 27 listed or special-status species potentially occur in the FDCP area. It should be noted that the FDCP encompasses greater area, elevation range and habitat types than the Forest Ranch project site.**

PLNG 29. Are any Federally listed threatened or endangered plants, or candidates for listing, present on the project site as proposed? If uncertain, a list is available in the Planning Department: **The FDCP Background Report notes that 3 plant species and 3 animal species which are threatened or endangered may potentially occur in the project area. It should be noted that the FDCP encompasses greater area, elevation range and habitat types than the Forest Ranch project area.**

PLNG 30. Will the project as proposed displace any rare of endangered species (plants/animals)? **Unknown. See #28 above.**

PLNG 31. What changes to the existing animal communities' habitat and natural communities will the project cause as proposed? **residential, equestrian, recreation vehicle park, office professional and golf course development will displace some natural habitat areas**

PLNG 32. Is there any rare, natural community (as tracked by the California Department of Fish and Game Natural Diversity Data Base) present on the proposed project? **Unknown See # 28 above.**

PLNG 33. Do wetlands or stream environment zones occur on the property (i.e., riparian, marsh, vernal pools, etc.)? Yes__XX__ No_____

PLNG 34. If yes, will wetlands be impacted or affected by development of the property?
Yes_____ No__XX__

PLNG 35. Will a Corps of Engineers wetlands permit be required? Yes_____ No_____**Unknown at this time.**

PLNG 36. Is a letter from the U.S. Army Corps of Engineers regarding the wetlands attached?
Yes_____ No__XX__

FIRE PROTECTION

DPW 37. How distant are the nearest fire protection facilities? ¼ miles
Describe: **CDF station.**

DPW 38. What is the nearest emergency source of water for fire protection purposes? N/A
Currently closest are **American River and Sugar Pine Reservoir. Project development will include pressurized fire hydrants and pond/lakes.**
Describe the source and location: **Pressurized hydrant system will be constructed with ultimate project development.**

DPW 39. What additional fire hazard and fire protection service needs would the project create? **With ultimate development, additional structural fire protection services will be required.**
What facilities are proposed with this project? **To be determined with future project proposal.**
For single access projects, what is the distance from the project to the nearest through road? **N/A**

Are there off-site access limitations that might limit fire truck accessibility, i.e. steep grades, poor road alignment or surfacing, substandard bridges, etc.? Yes____ No__XX__
If yes, describe: **Ultimate project access will be developed pursuant to County and CDF Requirements.**

NOISE

NOTE: **Project sites near a major source of noise, and projects which will result in increased noise, may require a detailed noise study prior to environmental determination.**

DEH 40. Is the project near a major source of noise? __No__ If so, name the source(s):
_____

DEH 41. What noise would result from this project - both during and after construction? **No noise associated with GPA and rezoning actions. During and after ultimate project construction, noise will result from construction equipment, vehicles and power equipment. After project construction, normal noise associated with residential uses.**

AIR QUALITY

NOTE: **Specific air quality studies may be required by the Placer County Air Pollution Control District (APCD). It is suggested that applicants with residential projects containing 20 or more units, industrial, or commercial projects contact the APCD before proceeding.**

APCD 42. Are there any sources of air pollution within the vicinity of the project? If so, name the source(s):__No__

APCD 43. What are the type and quantity of vehicle and stationary source (e.g. woodstove emissions, etc.) air pollutants which would be created by this project at full buildout? Include short-term (construction) impacts: **With ultimate development, air quality may be impacted by vehicles, use of wood stoves and small gasoline engines.**

AIR QUALITY (Continued)

APCD 44. Are there any sensitive receptors of air pollution located within one quarter mile of the project (e.g. schools, hospitals, etc.)? Yes Will the project generate any toxic/hazardous emissions? No

APCD45. What specific mobile/stationary source mitigation measures, if any, are proposed to reduce the air quality impact(s) of the project? Quantify any emission reductions and corresponding beneficial air quality impacts on a local/regional scale. **Potential mitigation measures for future development may include use of EPA-certified inserts, low-VOC coatings, exterior electrical outlets and other measures as may be agreed to with APCD.**

APCD46. Will there be any land clearing of vegetation for this project? Yes How will the vegetation be disposed? **Chipping, transport to landfill, burning subject to APCD permit.**

WATER

NOTE: **Based upon the type and complexity of the project, a detailed study of domestic water system capacity and/or groundwater impacts may be necessary).**

DPW 47. For what purpose is water presently used onsite? **None**
What and where is the existing source? **N/A**
Is it treated water intended for domestic use? **N/A**
What water sources will be used for this project?
Domestic: **Foresthill PUD** Irrigation: **Foresthill PUD, developed lakes, ponds & well water, underground disposal of treated wastewater.**
Fire Protection: **Foresthill PUD** Other:
What is the projected peak water usage of the project? **See below.** Is the project within a public domestic water system district or service area? **Yes, a portion**
If yes, will the public water supplier serve this project? **Yes**
What is the proposed source of domestic water? **Foresthill PUD**
What is the projected peak water usage of the project? **1.04 mgpd (0.906 mgpd over existing zoning designation).**

DEH 48. Are there any wells on the site? Yes If so, describe depth, yield, contaminants, etc.: **2 wells, each APX 250' deep, yielding approximately 15 gpm each.**

Show proposed well sites on the plan accompanying this application.

AESTHETICS

NOTE: **If the project has potential to visually impact an area's scenic quality, elevation drawings, photos or other depictions of the proposed project may be required.**

PLNG49. Is the proposed project consistent/compatible with adjacent land uses and densities? **Yes**

PLNG50. Is the proposed project consistent/compatible with adjacent architectural styles? **Yes, portions of the project will be subject to Design Review approval.**

PLNG51. Would aesthetic features of the project (such as architecture, height, color, etc.) be subject to review? Yes By whom? **Variously by Placer County and the Homeowners Association.**

PLNG52. Describe signs and lighting associated with the project: **No signage or lighting proposed at this time.**

PLNG53. Is landscaping proposed? Yes If so, describe and indicate types and location of plants on a plan. **Not applicable at this time period. Landscaping will be proposed with ultimate project development.**

ARCHAEOLOGY/HISTORY

NOTE: **If the project site is on or near an historical or archaeological site, specific technical studies may be required for environmental determination.**

PLNG54. What is the nearest historic site, state historic monument, national register district, or archaeological site? **Downtown Foresthill**

PLNG55. How far away is it? **¼ mile**

PLNG56. Are there any historical, archaeological or culturally significant features on the site (i.e. old foundations, structures, Native American habitation sites, etc.)? **None known.**

SEWAGE

NOTE: **Based upon the type and complexity of the project, a detailed analysis of sewage treatment and disposal alternatives may be necessary to make an environmental determination.**

DEH 57. How is sewage presently disposed of at the site? **N/A**

DEH 58. How much wastewater is presently produced daily? **N/A**

DEH 59. What is the proposed method of sewage disposal? **N/A at this time, with ultimate development sewage disposal will be by a community waste water treatment facility.**

Is there a plan to protect groundwater from wastewater discharges? Yes XX No_____ If yes, attach a draft of this plan. **Wastewater treatment facility will operate pursuant to Placer County and State Water Resources Control board standards.**

DEH 60. How much wastewater would be produced daily? **440,000 GPD (increase of 306,00 GPD over existing zoning designation)**

DEH 61. List all unusual wastewater characteristics of the project, if any. What special treatment processes are necessary for these unusual wastes? **None**

Will pre-treatment of wastewater be necessary? Yes_____ No XX If yes, attach a description of pre-treatment processes and monitoring system.

DEH 62. Is the groundwater level during the wettest time of the year less than 8 feet below the surface of the ground within the project area? No

DEH 63. Is this project located within a sewer district? No

If so, which district? N/A Can the district serve this project?

DEH 64. Is there sewer in the area? No

DEH 65. What is the distance to the nearest sewer line? N/A

HAZARDOUS MATERIALS

Hazardous materials are defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment (including oils, lubricants, and fuels).

DEH 66. Will the proposed project involve the handling, storage or transportation of hazardous materials? Yes_____ No__XX__

DEH 67. If yes, will it involve the handling, storage, or transportation at any one time of more than 55 gallons, 500 pounds, or 200 cubic feet (at standard temperature and pressure) of a product or formulation containing hazardous materials? Yes_____ No__XX__

DEH 68. If you answered yes to question #65, do you store any of these materials in underground storage tanks? Yes_____ No__XX__ If yes, please contact the Environmental Health Division at (916) 889-7335 for an explanation of additional requirements. **Ultimate operation of the golf course may involve the use and storage of hazardous materials (i.e. gasoline, pesticides etc.). Any such storage and use will be subject to approval by appropriate local and state agencies.**

SOLID WASTE

DEH 69. What types of solid waste will be produced? **Presumably residential refuse.** How much? **APX 20,000 lbs./day.** How will it be disposed of? **Transport by franchisee to regional landfill site.**

PARKS/RECREATION

PLNG 70. How close is the project to the nearest public park or recreation area? **¼ mile** Name the area **Foresthill Park**

SOCIAL IMPACT

PLNG 71. How many new residents will the project generate?__4400 (3060 new residents over existing zoning designation.)__

PLNG 72. Will the project displace or require relocation of any residential units?__No_____

PLNG 73. What changes in character of the neighborhood (surrounding uses such as pastures, farmland, residential) would the project cause? __Additional residential, equestrian and recreation/golf course uses.__

PLNG 74. Would the project create/destroy job opportunities?__Create_____

PLNG 75. Will the proposed development displace any currently productive use?_____No___

TRANSPORTATION/CIRCULATION

Note: **Detailed Traffic Studies prepared by a qualified consultant may be required following review of the information presented below.**

DPW 76. Does the proposed project front on a County road or State Highway? Yes__**XX**__ No_____ If yes, what is the name of the road? **Foresthill Road**

DPW 77. If no, what is the distance to the nearest County road?_____**N/A**_____
Name of road?_____

DPW 78. Would any non-auto traffic result from the project (trucks, trains, etc.)? Yes__**XX**__ No____ If yes, describe type and volume **With ultimate project development, small delivery and service vehicles.**

DPW 79. What road standards are proposed within the development? **Placer County standard road improvements.**
Show typical street section(s) on the site plan.

DPW 80. Will new entrances onto County roads be constructed? Yes__**XX**__ No_____
If yes, show location on the site plan.

DPW 81. Describe any proposed improvements to County roads and/or State Highways: **Subject to Placer County standards.**

DPW 82. How much additional traffic is the project expected to generate? (Indicate average daily traffic (ADT), peak hour volumes, identify peak hours. Use Institute of Transportation Engineers' (ITE) trip generation rates where project specific data is unavailable): **Please refer to attached supplemental response.**

DPW 83. Would any form of transit be used for traffic to/from the project site? **No**

DPW 84. What are the expected peak hours of traffic to be caused by the development (i.e., Churches: Sundays, 8:00 a.m. to 1:00 p.m.; Offices: Monday through Friday, 8:00 a.m. to 9:00 a.m., and 4:00 p.m. to 6:00 p.m.)? **Combined peak hour 11A.M.-12 noon, secondary combined peak hour 10 A.M.-11A.M.. Westbound peak 11 A.M.-12 noon, eastbound peak 3:30-4:30 P.M.**

DPW 85. Will project traffic affect an existing traffic signal, major street intersection, or freeway interchange? Yes__**X**__ No____. If yes, explain **Highway 80 interchange – insignificant as impacts occur during off-peak hours.**

DPW 86. What bikeway, pedestrian, equestrian, or transit facilities are proposed with the project? **N/A at this time, such facilities will be included with the actual project proposal, subject to County policies and approvals.**

Name and title (if any) of person completing this Questionnaire:

Signature: _____ Date: 11/01/01

Title: GK Consulting Engineers Telephone: (916) 723-0210

FOREST RANCH (EIAQ-3656)
PROBABLE ENVIRONMENTAL EFFECTS

PROJECT DESCRIPTION

Planning Department
The Project Description should include the same tables of land use designations and zone districts and the calculation of the number of dwelling units, acres and the percentage of the overall project in each [as is shown on the two exhibit maps included with the Initial Project Application (IPA) and the Environmental Impact Assessment Questionnaire (EIAQ)].

LAND USE AND PLANNING

Planning Department
The GPA and REA proposals would conflict with the current Foresthill General Plan (1981) as well as all of the preferred alternative (and all other Plan alternatives) that have been recommended by the FDCP Team. The majority of the property in question is designated for "Forestry" uses and is zoned Timberland Production (TPZ). While the California Board of Forestry and the Placer County Board of Supervisors have approved a Rezoning application that would re-designate the property from TPZ to Forestry (160-acre minimum lot size), that change does not become effective until 2003. At that time, the designated use of most of the land in question will remain "Forestry" rather than the residential, recreational and commercial land uses proposed by the applicants.

The Placer County General Plan (PCGP), the existing Foresthill General Plan (FGP), and the Foresthill Divide Community Plan (FDCP) [in progress] all contain goals and policies that favor the preservation of high capability soils for timber production as an important County resource. In addition, removal of more than 2,000 contiguous acres of high quality timber production lands from the inventory and in relatively close proximity to lumber processing facilities and areas where substantial construction and development is occurring increases the cost of building materials to the end user and reduces the availability of suitable lands for future timber production. Conversion of the property in question to residential/recreational uses will cause potential incompatibilities with adjacent timber-producing lands. While that portion of the property that is already zoned for residential use (±550 acres) meets many of the goals and policies of the FGP and the proposed FDCP (*i.e.* proximity to the historic downtown area of Foresthill, location on the north and east sides of the existing community, relatively gentle topography, etc.), the expansion of such uses to the rest of the property deviates from the stated objectives of both the FGP and the proposed FDCP.

POPULATION AND HOUSING

Planning Department
The GPA and REA proposals will cumulative exceed official regional and local population projections. The Foresthill Divide has a historically slow growth rate (less than 2% for the past ten years). Approval of the project proposals has the potential to accelerate the pace of development beyond the capability of the community to adapt. The area in question is undeveloped (with the exception of several logging operations within the recent past). A project (or projects) that would likely result from approval of the GPA and REA would induce substantial growth into an area not previously designated for it.

GEOLOGIC PROBLEMS

Planning Department
The development of a residential/recreational project as envisioned by the applicants' proposals would very likely result in significant grading and landform disturbance. Soils in this area are highly erodable and are unstable on steep slopes. The potential exists for substantial alteration of indigenous landforms (including unique physical features) as a result of the development of the property in accordance with the GPA and REA proposals..

Department of Public Works
The project as proposed would disturb areas which have previously been undisturbed or which may have been logged in the past. There is a reasonable potential for unstable earth conditions to be created without appropriate mitigation being applied. It is unknown at this time if any unique geological or physical features may be impacted by this proposed project. In addition, the project would create structures where none currently exist creating new opportunities for people to be exposed to geologic hazards such as exist in the Sierra foothills, which is located in Seismic Zone III. These are potentially significant impacts.

The applicant estimates that upon buildout grading activities would have disturbed 18-22% of the site. There is a potential to create significant erosion impacts through grading of the project site. There is potential for increases in impervious surfaces on the site to increase the amount of runoff entering the American River. These are potentially significant impacts.

WATER

Planning Department
The development of the land in question pursuant to the proposals of the Forest Ranch proponents could result in changes in the absorption rates, runoff patterns and the amount of surface runoff. As a consequence of these potential changes, discharge into surface water could occur that would alter the ambient water quality. Any adverse effects to ambient the water quality could have a commensurate adverse effect on

downstream bodies of water (North Fork American River, Lake Clementine, Folsom Lake) that serve as both public water supplies and habitat for fish and other wildlife.

Department of Public Works
This project will create impervious surfaces including roads, driveways, buildings, parking and circulation areas. It is reasonable to expect these hard surfaces may lead to increases in the rate and amount of runoff from the site. The location of the site in relation to natural streams, including the North Fork of the American River creates concern that additional runoff could lead to adverse water quality impacts. This could be exacerbated by the disturbance of the site during construction. It is not known what impacts additional impervious surface could have on flood plains both on and off-site. These are all potentially significant impacts.

This project will include grading and roadway construction which could conceivably impact streams on-site. This is a potentially significant impact.

Environmental Health
The use of golf course turf management chemicals have the potential to impact or alter surface water quality.

Use of groundwater for irrigation has the potential to reduce the quantity of available groundwater.

Septic systems and turf management chemicals have the potential to adversely impact groundwater quality.

AIR QUALITY

Air Pollution Control District
The proposed project could result in air pollutant emissions. The air quality concerns includes emissions form the development of this project and the impacts to localized and regional air quality.

TRANSPORTATION/CIRCULATION

Planning Department
Any development resulting from the approval of the applicant's requested GPA and REA applications would result in significant increases in vehicular traffic on local roadways (especially the Foresthill Road). If developed in the widely dispersed design included with the GPA and REA applications, emergency access to the most remote portions of the project would be potentially inadequate.

Department of Public Works
There is a potential for this project to contribute to significant increases in traffic and congestion. All points of access as well as major intersections along these links may be impacted along with Foresthill Road between the Community of Foresthill and Auburn.

Depending on the design of the on-site roadway system, there may be significant circulation impacts. These are potentially significant impacts.

The project proposes roads on-site, but no detail has been provided regarding their design. There is the potential for hazards to be significant if the project does not maintain consistency with the Placer County Land Development Manual. This is a potentially significant impact.

This project would be located in a forested area subject to wildfire risks, potentially requiring secondary accesses. It is not clear from the information submitted that the proposed project would incorporate sufficient emergency access. Access to adjacent uses may also be impacted. This is a potentially significant impact.

The project as proposed may require additional parking on-site or off. There is a potential for significant parking impacts.

BIOLOGICAL RESOURCES

Planning Department

Biological studies produced during the FDCP process has demonstrated the potential existence of threatened or rare species or their habitats in the immediate area of the proposed development. The effects of the project could be considerable. This also applies to locally occurring natural communities such as oak woodlands, mixed conifer forests, annual grasslands, wetlands and riparian areas. The likelihood of critical deer winter ranges and migratory routes existing on the project site is very high. Large areas of non-fragmented, high quality wildlife habitat would be destroyed (or substantially reduced in habitat value), and the resident wildlife populations could be displaced as a consequence of the proposed development.

ENERGY AND MINERAL RESOURCES

Planning Department

The GPA and REA proposals would potentially conflict with energy conservation plans by extending the commute distances for residents of the project rather than concentrating the population nearer to services and allowing for viable alternative transportation modes. The building materials (primarily wood products and oil derivatives) could be more effectively utilized in a development project that was more compact and that had more multiple family dwelling units. The property has had mineral extraction operations in the past (gold, aggregates, etc.) It is unclear how the proposed new land uses would affect the future potential for continued recovery of these resources.

HAZARDS

Planning Department
The proposed golf course could utilize pesticides and herbicides in large amounts. Anytime large concentrations of such compounds are stored, handles and use, a potential exists for these substances to come into contact with people, animals and surface bodies of water. The remote nature of the project may result in difficulty for the emergency response agencies to react to any potential releases of these hazardous substances. An increase risk of wildland fires would be created by the development of a project such as the one proposed in the forest/grassland environment on the property in question.

Environmental Health
Chemicals stored or handled at the project site such as fuel and turf management chemicals pose a hazard from an accidental release. Future residents could be potentially exposed to physical and chemical hazards from abandoned mines.

NOISE

Environmental Health
Increases in area traffic from this project have the potential to significantly increase both on-site and off-site traffic noise.

PUBLIC SERVICES

Planning Department
Virtually all public services could be substantially affected by a project of the size, scale and location proposed for Forest Ranch. The relative remoteness of the project exacerbates the normal problems experienced by fire and public protection agencies in responding in a timely manner. Schools would be impacted by both the number of new students produced by a project of the magnitude of Forest Ranch as well as the rate of growth of the student population. The additional traffic added by the project will increase roadway maintenance costs to the County (including snow removal costs), even if the internal roadway system serving the project is privately maintained. Health and human services provided by Placer County would increase in cost due to the remote nature of the project. Wastewater treatment will be a significant point of concern for a project of this scope in an area that has heretofore had no centralized wastewater treatment systems.

Department of Public Works
There is insufficient information to determine the impact in terms of maintenance of new roads or other public facilities. This could be potentially significant. This project may have impacts on existing facilities which would increase the public maintenance burden as well.

UTILITIES AND SERVICE SYSTEMS

Department of Public Works
This project will result in the need for additional storm drainage infrastructure. It is not clear at this time what impact this may have on the public or adjacent properties. This could be a potentially significant impact.

Environmental Health
This project has the potential to impact the treatment and distribution capabilities of the Foresthill Public Utility District.

The project has the potential to create the need for new creation of or expansion of a public managing entity to oversee the operation and maintenance of project sewage disposal systems.

The project may create cumulative impacts on the solid waste collection and disposal systems.

AESTHETICS

Planning Department
Development of a large residential/recreational project such as the Forest Ranch proposal in a forest environment will cause substantial negative aesthetic effects, both in terms of significant removal of the forest backdrop and in the introduction of excess light and glare in an otherwise "dark sky" situation.

CULTURAL RESOURCES

Planning Department
The widespread disturbance of the natural landforms that is normally associated with a project of this size and scale, especially when such a project is located in an area that is well known for the occurrence of paleontological, archaeological and historical resources, is likely to result in a significant effect on these resources. Native American use of this area was substantial both before and after the arrival of Europeans. The likelihood of important cultural and/or religious sites within the boundaries of the Forest Ranch proposal is very high.

RECREATION

Planning Department
The demands for recreational facilities that a development of the size and scale of Forest Ranch would produce would adversely affect existing public recreation facilities on the Foresthill Divide (many of which are already overtaxed). The project may provide some additional recreational opportunities (golf, extended trails systems, etc.);

however, other existing recreational opportunities (bird watching, nature study, fishing, hunting, trail riding/hiking, etc.) may be adversely affected.

MANDATORY FINDINGS OF SIGNIFICANCE

Department of Public Works
The project as proposed has the potential to have significant adverse impacts on traffic and parking. It is reasonable to assume that the project could also contribute cumulatively to existing parking and traffic problems in the area (Foresthill). In addition, the increased runoff generated from the new coverage proposed by this project could contribute to potentially significant impacts to both water quality and water quantity in the American River.

Air Pollution Control District
The proposed project could result in short and long-term regional and local air quality impacts. The project is located in the portion of the Mountain Counties Air Basin of Placer County. The area is classified as non-attainment for the State Particulate Matter (PM10) standards and non-attainment for the federal and state ozone standards.

PLACER COUNTY PLANNING DEPARTMENT

11414 B Avenue/Auburn, California 95603/Telephone (530) 889-7470/FAX (530) 889-7499
Web Page: http://www.placer.ca.gov/planning E-Mail: ljlawren@placer.ca.gov

February 5, 2002

Don Ryan, et.al
Forest Ranch Associates
1735 Crockett Lane
Hillsborough, CA 94010

Subject: **Forest Ranch (EIAQ-3656), Notice of Preparation Comments**

Comments regarding the NOP are attached for your review and response in the Environmental Impact Report (EIR). Any additional comments that may be received will be forwarded to you by fax.

The first administrative draft EIR (10 copies) should be received by this office no later than **90 days from contract approval**. The submittal shall be accompanied by the current EIR review fee. If you require additional time in order to prepare the EIR, please do not hesitate to contact this office and request a suspension of the processing timeframes.

Sincerely,

Lori Lawrence

LORI LAWRENCE
Planning Technician/Environmental Coordinator

Attached comments:
Placer County Department of Public Works, 1/29/02
Placer County Air Pollution Control District, 1/28/02
Placer County Facility Services, Parks Division, 1/7/02
Placer County Sheriff, 1/15/02
United States Department of the Interior, Fish and Wildlife Service, 1/28/02
United States Department of Agriculture, Forest Service, 1/25/02
State of California Native American Heritage Commission, 1/9/02
State of California Department of Transportation (Caltrans), 1/28/02
State of California Department of Forestry and Fire Protection, 1/17/02
State of California Water Resources Control Board, 1/23/02
Foresthill Fire Department, 1/17/02
Foresthill Public Utility District, 1/18/02
Sierra Club, 1/25/02
Brent A. Backus, 1/21/02
Residents on Blackhawk Road and Black Oak Ridge, 1/26/02
Harry Shuger, 1/25/02
Beverly Anderson, 1/17/02
Foresthill Union School Dist, 2/25/02

cc: ERC members

MEMORANDUM

DEPARTMENT OF PUBLIC WORKS

County of Placer

TO: LORI LAWRENCE, PLANNING DEPT. DATE: January 29, 2002

FROM: DAVID W. PRICE, DPW - LAND DEVELOPMENT

SUBJECT: EIAQ-3656, NOP: FOREST RANCH; FORESTHILL DIVIDE; (APN: SEVERAL - BOOK 007 AND 064)

The Department of Public Works (DPW) has reviewed the subject Notice of Preparation (NOP) and would like to offer the following comments. If not expressly stated in the comments below, it is intended that the EIR propose appropriate mitigations for all project impacts identified.

GEOLOGY & SOILS

1. The EIR should include a preliminary grading plan for the project which shows all proposed grading, cut/fill limits, slopes, road grades, retaining walls, etc. This plan should be of sufficient scale and detail to allow evaluation of environmental impacts. Earthwork quantities for various project components should be summarized in the document. Existing and proposed contours and/or spot elevations should be clearly identified. The preliminary grading plan should be prepared to an appropriate engineering scale so that an accurate environmental finding can be made. The plan should include:

a) a vicinity sketch (not at map scale) indicating the location of the site relative to the principal roads, lakes and watercourses in the area.
b) the complete site boundaries and locations of any easements and rights-of-way traversing and adjacent to the property, appropriately labeled and dimensioned.
c) the location of all existing and proposed roads, buildings, wells, pipelines, watercourses, septic systems or areas reserved for on-site sewage disposal, and other structures, facilities, and features of the site, and the location of all improvements on adjacent land within 50 feet of the proposed work.
d) location and nature of known or suspected soil or geologic hazard areas.
e) contour lines of the existing terrain and proposed approximate finished grade at intervals not greater than five feet, or spot elevations 25 feet on center showing all topographic features and drainage patterns throughout the area where proposed grading is to occur. The contour lines/spot elevations shall be extended to a minimum of 50 feet beyond the affected area, and further if needed to define intercepted drainage, and shall be extended a minimum of 100 feet outside of any future road rights of way.

f) approximate location of cut and fill lines and the limits of grading for all the proposed grading work, including borrow and stockpile areas. Include an estimate of the total quantity of earthwork.
g) location, width, direction of flow and approximate location of tops and toes of banks of any watercourses.
h) approximate boundaries of any areas with a history of flooding.
i) proposed provisions for storm drainage control and any existing or proposed flood control facilities or septic tank disposal fields or areas reserved for on-site sewage disposal in the vicinity of the grading.
j) a conceptual plan for erosion and sediment control including both temporary facilities and long term site stabilization features such as planting or seeding for the area affected by the proposed grading.
k) a conceptual plan for management of hazardous materials. The plan will include designation of an area to store and maintain equipment, and to store and dispose of hazardous materials. The Director of Public Works may waive this requirement for sites where equipment and hazardous materials will not be stored.
l) General location and character of vegetation covering the site.
m) parking lot layout/circulation area dimensions
n) existing improvements and improvements that are currently proposed to be constructed by this development. Show any future improvements as an additional phase of the project and clearly indicate this phasing.

2. The EIR should identify quantities, stockpile locations, haul routes, etc. for excavation and/or embankment soils between phases. The EIR should address off-site stockpiling, if proposed, as well as any off-site locations which would be the source of borrow material, or the destination for excess cut material.

3. Construction impacts associated with on- and off-site utilities, roads, etc. should be evaluated. Include analyses of new easements which would be necessary or existing easements which may be impacted by the project.

4. The EIR should discuss potential erosion risks. Discussion should address potential impacts to adjacent streams, wetlands and the American River watershed. The EIR should propose specific methods to minimize the project's impacts on water quality both during and after construction of the project.

5. New development is required to provide frontage improvements to County roadways per the Placer County Street Ordinance. The EIR should show the half-street improvements to Foresthill Road and Yankee Jim's Road on the preliminary grading plan to allow evaluation of the grading impacts resulting from said improvements. For Foresthill Road, the required frontage improvement is ½ of a 40'-wide road. The design speed shall be 55 mph with a TI of 10.0. For Yankee Jim's Road, the required frontage improvement is ½ o32f a 40'-wide road. The design speed shall be 35 mph with a TI of 6.5. The applicant would be required to dedicate or show that there exists ½ of an 84'-wide right-of-way on Foresthill Road and ½ of a 60'-wide right-of-way

on Yankee Jim's Road. All dedications and improvements in this condition are to be measured from centerline of the existing roadway, the plan line, or other alignment as approved by the DPW.

The applicant should be aware that improvement to County Roads passing through the development, where double frontage exists, will require full roadway improvements (i.e. half-street improvement on each frontage).

6. A preliminary geotechnical report should be provided with the EIR. The investigation report should contain all of the following, as they may be applicable to the subject site:

A. An index map showing the regional setting of the site;
B. A site map which shows the topographic features of the site and locations of all soil borings and test excavations;
C. A classification of the soil types (unified soil classification), pertinent laboratory test data and consequent evaluation regarding the nature, distribution, and strength of existing soils;
D. A description of the geology of the site and geology of the adjacent areas;
E. A suitably scaled map and cross sections showing all identified areas of land slippage;
F. A description of any encountered groundwater or excessive moisture conditions;
G. A description of the soil and geological investigative techniques employed;
H. A log for each soil boring and test excavation showing elevation at ground level and the depth of each soil or rock strata;
I. An evaluation of the stability of pertinent natural slopes and recommendations regarding maximum cut and fill slopes of proposed work;
J. An evaluation of settlement associated with the placement of any fill;
K. Recommendations for grading procedures and specifications, including methods for excavation and subsequent placement of fill;
L. Recommendations regarding surface and subsurface drainage and erosion control;
M. Recommendations for mitigation of geologic hazards (Ord. 5056-B (part), 2000);
N. Recommended erosion control measures applicable to the soil types present on site.

WATER

1. As part of the EIR, a drainage study should be prepared (conforming to the Stormwater Management Manual and Section 5 of the Placer County Land Development Manual) in order to analyze the drainage related impacts occurring from the proposed development. The study should address issues such as, but not necessarily limited to the following so that appropriate environmental findings can be made (with preliminary calculations where appropriate):

a) existing conditions;

b) description of the proposed improvements, both on and off-site and the effect of the improvements and mitigations to existing, downstream, drainage structures (Identify the length, size, slope, elevation and maximum capacity of proposed and existing inlets, outlets, pipes, culverts or other structures on-site or that this project drains to pre- versus the post-development project flow);
c) goals and all assumptions of the design, including a description of the hydrologic method used;
d) explanation of all special designs;
e) description of easements required;
f) drainage during construction;
g) description of any existing irrigation ditches/canals on the project site, and upstream or downstream of the site with any applicable "spill rights" that the canal(s) may have which would impact the design;
h) location and typical details of the method of discharge of collected storm water to avoid downstream impacts;
i) a shed map that depicts all watershed areas that drain into/through/from the subject parcel as well as on and off -site drainage locations of the storm water collection system improvements. Include tables indexed to the shed map indicating drainage areas in acres, soil and cover types, existing and/or future land use, pervious infiltration rates, impervious areas, flows for both the pre- and post-development conditions for both the 10 and 100-year storm event;
j) summary table of detention basin design data;
k) The 100-year floodplain limits of significant on-site drainage courses must be clearly identified and shown on a suitable exhibit.
l) The design of stream crossings and effects on the flow and floodplain in the stream(s) should be adequately described and impacts analyzed.

Also included should be hydraulic design of any channels that transport off-site drainage through the subject parcel as well as any surface flow facilities (such as concrete v-gutters or asphalt/PCC swales proposed within roadways or parking areas). Identify any impacts to adjacent property with the construction of said channels. Appropriate mitigations for all impacts should be identified.

2. The EIR should discuss the project's impacts relative to water quality degradation through sedimentation and urban runoff. To the greatest extent possible, the impacts and mitigation effectiveness should be quantified. The use of Best Management Practices (BMPs) for mitigating sedimentation impacts is a preferred approach, and the consultant should consider multi-functional facilities designed for both water quality and stormwater detention/retention. The EIR should also discuss the long- and short-term maintenance requirements of these facilities. Applicability of construction permits pursuant to the National Pollutant Discharge Elimination System (NPDES) program administered by the State Regional Water Quality Control Board should be described.

3. The EIR should provide a wetlands analysis and identify impacts associated with grading activities, increased stormwater discharge, pond construction/outlet conditions, and general project development, as applicable.

4. Overland release points for the 100-year event should be shown on the watershed map or preliminary grading plan and identified as such. All associated grading and limits of required drainage easements shall be shown.

FIRE PROTECTION

1. The EIR should evaluate requirements of the servicing fire district and/or CDF and any impacts meeting these requirements may create. For example, maximum dead end road standards required by the Placer County Land Development Manual and PRC 4290 may require secondary accesses or alternative mitigations approved by the servicing fire district.

TRANSPORTATION / CIRCULATION

1. Provide an exhibit which clearly shows all proposed and required accesses (both primary and secondary). Include design standards for each roadway and associated intersections.

2. The EIR should include a comprehensive traffic impact analysis that includes the following:

- An existing conditions analysis. This analysis will provide the benchmark against which the impacts of the project can be measured vis-à-vis level of service, operating conditions and roadway conditions such as width, curvature, speed, sight distances, etc.

- A trip generation analysis. The analysis should include a comprehensive discussion and calculation of the trip generation potential of the proposed project.

- Evaluation of public transit needs. The demand and need for public transit should be evaluated given the large senior restricted population.

- A trip distribution analysis. The traffic analysis should develop an analysis of the trip distribution of the project trip generation.

- A traffic assignment and impact evaluation. Based on the trip generation, mode split and trip distribution analyses, the impact analysis should assign project generated trips to the available street system, both existing and proposed and provide an evaluation of the impact of the project traffic on level of service, traffic operations, and other roadway conditions.

The sphere of potential impacts of this proposed project is vast. All existing roadways that will experience an increase in traffic from the project must be included in the traffic analysis. This

includes Foresthill Road, Yankee Jims Road, Black Hawk Lane, California Street, Main Street, Gold Street, Race Track Road and potentially others. All on-site roadways and intersections should also be included.

The analysis should include evaluations of existing, existing plus project, cumulative and cumulative plus project conditions. If phasing of the project is proposed, analysis of potential impacts of each phase must also be evaluated. We would yield to the Planning Department regarding the Cumulative, no project base conditions with respect to the appropriate long range planning documents from which to derive this base.

PUBLIC SERVICES/UTILITIES AND SERVICE SYSTEMS

1. The EIR should evaluate roadway and storm drainage infrastructure requirements of the project. An evaluation of the ongoing maintenance requirements any such proposed or necessary improvements would create should be included as well. Appropriate mitigations for impacts identified in the EIR should be proposed.

2. Impacts to service providers (i.e. fire service, police/sheriff service, water service, transportation, sanitary sewer, solid waste) should be identified. Appropriate mitigations should be proposed.

MANDATORY FINDINGS OF SIGNIFICANCE

1. The EIR should address cumulative impacts related to this project proposal. Given the status of the Foresthill Divide Community Plan update, the DPW will defer to the Planning Department with regard to the impacts which may or may not be considered cumulative. Appropriate mitigations should be proposed. Significant and unmitigable impacts should be identified as well.

cc: Tom Brinkman, DPW Transportation

PLACER COUNTY AIR POLLUTION CONTROL DISTRICT

11464 B Avenue, Auburn, CA 95603 ▫ (530) 889-7130 ▫ Fax (530) 889-7107

MEMORANDUM

TO: Lori Lawrence, Planning Department

FROM: Ann Hobbs, Air Quality Specialist\Planner

DATE: January 28, 2002

SUBJECT: Forest Ranch –(EIAQ-3656)
Notice of Preparation of a Draft Environmental Impact Report

The Placer County Air Pollution Control District (District) has completed its review of the above referenced project. Buildout of this project will result in significant regional air quality impacts, including direct and indirect impacts to air quality in Placer County. As a result, a detailed air quality analysis using a reasonable worst case scenario should be provided in the Draft Environmental Impact Report (DEIR).

The Air Quality analysis needs to accurately estimate air pollutant emissions from all sources associated with this project and to identify feasible mitigation measures that can be evaluated in the DEIR. In addition to the Setting and Background sections, the DEIR should provide the following information so that the significance of project alone and cumulative impacts can be determined.

1. For infrastructure improvements, estimate the amount of dust emissions that could be generated based on the size and number of area(s) being disturbed. Estimate the types and quantities of emissions (in pounds per day) that could be expected from the diesel powered earth moving equipment working simultaneously on an average construction day. The Urbemis 7G model can be used to estimate construction equipment emissions.

2. Please identify how removed vegetation will be disposed. Opening burning of cleared vegetation should not be permitted. Mitigation measures should be proposed that eliminate the need for open burning.

3. Qualitatively discuss the project=s air quality impacts in relation to the new National Ambient Air Quality Standards for ozone and particulate matter (2.5 micron size particles). What effect would this project have on the District=s ability to meet these standards?

4. If the traffic study prepared for this project identifies any intersection(s) that would fall below a Levels of Service D under project alone or cumulative development scenarios, a detailed Caline 4 Carbon Monoxide analysis should be prepared.

5. Estimate the amount of Particulate, Carbon Monoxide and Nitrogen Oxide emissions that can be expected from residential woodburning devices (inc. fireplaces) and hot water heaters.

6. Identify all sources of air emissions that could result from implementation of the project. Using the Urbemis 7G computer model, estimate project emissions in pounds per day and compare the project=s emissions to the District=s significance thresholds. Emission estimates should be made based on the existing general plan and zoning designations for the property and for the proposed project. A comparison should be made that indicates the increase in regional emissions due to the proposed land use changes.

7. Identify both on-site and off-site mitigation measures that can be implemented to offset the short and long-term air quality impacts from this project. Also, discuss how the mitigation measures will be monitored to ensure that they are implemented.

8. Qualitatively and quantitatively (when possible) evaluate the effectiveness of the mitigation measures that are proposed to reduce air quality impacts.

9. If the DEIR determines that implementation of the project will result in growth inducing impacts, please discuss and quantify these impacts as they relate to air quality issues.

If you have any questions, please contact me at (916) 889-7137.

MEMORANDUM

DEPARTMENT OF FACILITY SERVICES

COUNTY OF PLACER

To: **LORI LAWRENCE/PLANNING** Date: **January 7, 2002**

From: **VANCE KIMBRELL**

Subject: **FOREST RANCH NOP(EIAQ 3656)**

The Parks Division has reviewed this submittal and has the following comments:

1. For a subdivision of this size, the project would need to provide a minimum of 29 acres of active recreation facilities. The only definition presented in this proposal is trails, a golf course, meeting rooms, and a swimming pool. Neither golf courses nor trails count against this acreage requirement, and meeting rooms may not count.
2. Does the applicant propose public or private facilities and where are those locations?
3. Use trail classifications as defined in the draft Placer County Trails Master Plan. Contact Parks Division at (530) 889-7750 for a copy.

The plan, as submitted, is inadequate for our review of recreation requirements.

VK:dh

CC: John Ramirez

T\F\V\FOREST RANCH NOP EIAQ (3656)

PLACER COUNTY
DATE
RECEIVED
JAN 09 2002
PLANNING DEPARTMENT

PLACER COUNTY
SHERIFF
CORONER-MARSHAL

MAIN OFFICE
P.O. BOX 6990
AUBURN, CA 95604
PH: (530) 889-7800 FAX: (530) 889-7899

TAHOE SUBSTATION
DRAWER 1710
TAHOE CITY, CA 96145
PH: (530) 581-6300 FAX: (530) 581-6377

EST. 1851

EDWARD N. BONNER
SHERIFF-CORONER-MARSHAL

STEPHEN L. D'ARCY
UNDERSHERIFF

LAW ENFORCEMENT IMPACT REPORT

Prepared by the Placer County Sheriff's Department
DANIEL D. HALL/FIELD OPERATIONS COMMANDER

I. NAME OF PROJECT: FOREST RANCH (EIAQ-3656)

II. LOCATION: North and East of Foresthill.

III. AGENICIES/FIRM REQUESTING REPORT:
Lori Lawrence
Placer County Planning Department
11414 B Avenue
Auburn, CA 95603

IV. COMMERCIAL:
A.
B.

RESIDENTIAL
A. 2,213 residential units x 2.5 = 5,533 residents
B.

V. BUDGET IMPACT:

A. Personnel (sworn)

1. At one (1) Deputy for every 1,000 residents
   5,533 residents = 16,599 Deputy hours for field operations per year
   (5,533 res. x 3.0)
2. Jail deputies = 6,695 hours per year
   (5,533 res. x 1.21)

Total sworn hours per year: 23, 294 @40.00 per hour = $931,760.00

B. Personnel (non-sworn)

1. Dispatch = 205 hours per year
2. Records = 72 hour per year
3. Clerical = 44 hour per year

Total support personnel hours per year: 321 @27.00 per hour = $8,667.00

C. Equipment
Vehicles, gasoline, maintenance, printing,
Weaponry, training, jail buildings = **$313,476.00**

VI. ANNUAL BUDGET INCREASE

Sworn Personnel	$931,760.00
Support Personnel	$ 8,667.00
Equipment, etc.	$313,476.00
TOTAL PER YEAR	**$1,253,903.00**

VII. SPECIAL PROBLEMS: none noted.

VIII. RECOMMENDATIONS: Many of the potential crime problems dealing with circulation systems and structures may be reduced by utilizing the concepts of "Crime Prevention Through Environmental Design" (CPTED). By working closely with law enforcement during all stages of this development, design features that encourage criminal activity can be identified and solutions found to mitigate problem designs.

IX. WILL/WILL NOT SERVE:
The Placer County Sheriff's Department's ability to handle law enforcement needs generated by this development are dependant on the Board of Supervisors authorizing funding equivalent to the needs mentioned in this report. Without the additional personnel, equipment, etc., appropriate service will be severely impaired.

EDWARD N. BONNER
SHERIFF/CORONER/MARSHAL

prepared by: A. Flaherty/Crime Prevention
Placer County Sheriff/South Placer Substation
652-2415 01-15-02

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

IN REPLY REFER TO:
PPN 2901

PLACER COUNTY
DATE
RECEIVED

January 28, 2002

JAN 2 9 2002

PLANNING DEPARTMENT

Lori Lawrence
County of Placer
Planning Department
11414 B Avenue
Auburn, California 95603

Subject: Notice of Preparation of a Draft Environmental Impact Report; Forest Ranch, Forest Ranch Associates, Foresthill, Placer County, California

Dear Ms. Lawrence:

Thank you for the opportunity to review the Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) for the proposed Forest Ranch project. The enclosures provided in this letter are intended to assist you in the early environmental review of this proposal. Future consultation with the U.S. Fish and Wildlife Service (Service) may be required under the provisions of the Fish and Wildlife Coordination Act or the Endangered Species Act of 1973, as amended (Act) if project activities are anticipated to affect federally listed endangered species or impact jurisdictional wetlands.

Enclosure A provides a list of sensitive species that may occur in or near the project site. The Service recommends that surveys be completed by a qualified biologist on the proposed project site to confirm the presence or absence of special-status species or their habitats. For information on whether this project may affect federally listed anadromous fishes, we recommend contacting the National Marine Fisheries Service (NMFS).

Direct, indirect, and cumulative impacts on federally listed species and species of concern to the Service should be evaluated. The existing conditions on the project site provide actual or potential habitat for many species of concern. Species of concern are provided no protection under the Act. However, one potential benefit of considering species of concern is that by exploring alternatives early in the planning process, it may be possible to provide long-term conservation benefits for these species and avoid future conflicts that could otherwise develop.

Enclosure B recommends general guidelines for identifying and mitigating project impacts to fish, wildlife, and their habitats. The Council on Environmental Quality developed regulations for implementing the National Environmental Policy Act, and defines mitigation to include: (1) avoiding the impact; (2) minimizing the impact; (3) rectifying the impact; (4) reducing or eliminating the impact over time; and (5) compensating for impacts. The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. Accordingly, we maintain that the best way to mitigate for the adverse biological impacts is avoidance when at all possible.

GENERAL COMMENTS

The DEIR should identify and discuss all direct and indirect impacts to natural resources (i.e., wetlands, wildlife habitat, sensitive species) associated with construction, operation, and maintenance of the proposed Forest Ranch development. Further, a cumulative effects analysis should incorporate any related actions that would not be undertaken but for the proposed project. Such related actions include, but are not limited to:

- all necessary roadway improvements required for project implementation;
- installation of any water distribution system needed to service the facility; and
- adoption or installation of a wastewater treatment system.

The NOP does not discuss any proposed design alternatives. Consideration of alternative design proposals should be included in the DEIR. In a project of this magnitude there are innumerable potential options available to reduce the direct and indirect impacts to natural resources. Inclusion of a comprehensive array of design alternatives which reduce resource impacts would be greatly beneficial.

Cursory examination of the Service's National Wetland Inventory maps has identified wetland habitats on the proposed project site. We recommend a wetland delineation of the proposed project site be conducted by a qualified biologist or firm and submitted to the U.S. Army Corps of Engineers for verification. The DEIR should include a wetlands map and consider all direct and indirect impacts of the proposed project to wetlands located on or adjacent to the site.

We encourage you to use these comments and guidelines to develop a comprehensive environmental document that addresses these needs. The Service requests that a copy of the DEIR be provided to this office. If you have any questions regarding these comments, please contact Larry Butcher in the Watershed Planning Branch at (916) 414-6580. For questions concerning special status species issues, please contact Ann Bowers, Endangered Species Division at (916) 414-6600.

Sincerely,

Michael B. Hoover
Acting Field Supervisor

Enclosures

cc:
AES, Portland, OR

cc (w/o enclosures):
NMFS, Sacramento, CA
RM, CDFG, Region 2, Rancho Cordova, CA

Important Information
About Your Species List

How We Make Species Lists
We store information about endangered and threatened species lists by counties and by U.S. Geological Survey 7 1/2 minute quads. The United States is divided into these quads, which are about the size of San Francisco. If you requested your list by county or by quad name or number, that is what we used. Otherwise, we used the information you sent us to determine which counties and quads to use.

Animals
The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list. Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them. Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents. Birds are shown regardless of whether they are resident or migratory. Relevant birds on a county list should be considered regardless of whether they appear on a quad list for that county.

Plants
Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. We may have also given you either a county species list or a list of species in nearby quads. We recommend that you check for the plants on this additional list.

State-Listed Species
If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. However you should contact the California Department of Fish and Game for official information about these species. Call (916) 322-2493 or write Marketing Manager, California Department of Fish and Game, Natural Diversity Data Base, 1416 Ninth Street, Sacramento, California 95814.

Critical Habitat
When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light; other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife. If any species has proposed or designated critical habitat within a quad, this will be noted on the species list. Maps and boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95).

Species of Concern
Your list may contain a section called Species of Concern. This term includes former category 2 candidate species and other plants and animals of concern to the Service and other Federal, State and private conservation agencies and organizations. Some of these species may become candidate species in the future.

Endangered and Threatened Species that May Occur in
or be Affected by Projects in the Selected Quads Listed Below
Reference File No. 1-1-02-SP-0610
Forest Ranch NOP
January 15, 2002

QUAD: 541C COLFAX

Listed Species

Birds

bald eagle, *Haliaeetus leucocephalus* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T) NMFS

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E) NMFS

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T) NMFS

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

Candidate Species

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C) NMFS

Species of Concern

Mammals

spotted bat, *Euderma maculatum* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

Sierra Nevada snowshoe hare, *Lepus americanus tahoensis* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

Birds

northern goshawk, *Accipiter gentilis* (SC)

tricolored blackbird, *Agelaius tricolor* (SC)

grasshopper sparrow, *Ammodramus savannarum* (SC)

short-eared owl, *Asio flammeus* (SC)

western burrowing owl, *Athene cunicularia hypugaea* (SC)

Lawrence's goldfinch, *Carduelis lawrencei* (SC)
Vaux's swift, *Chaetura vauxi* (SC)
black tern, *Chlidonias niger* (SC)
black swift, *Cypseloides niger* (SC)
hermit warbler, *Dendroica occidentalis* (SC)
little willow flycatcher, *Empidonax traillii brewsteri* (CA)
American peregrine falcon, *Falco peregrinus anatum* (D)
loggerhead shrike, *Lanius ludovicianus* (SC)
Lewis' woodpecker, *Melanerpes lewis* (SC)
long-billed curlew, *Numenius americanus* (SC)
bank swallow, *Riparia riparia* (CA)
rufous hummingbird, *Selasphorus rufus* (SC)
Brewer's sparrow, *Spizella breweri* (SC)
California spotted owl, *Strix occidentalis occidentalis* (SC)

Reptiles
northwestern pond turtle, *Clemmys marmorata marmorata* (SC)
California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians
foothill yellow-legged frog, *Rana boylii* (SC)
western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish
green sturgeon, *Acipenser medirostris* (SC)
longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates
Sagehen Creek goracean caddisfly, *Goeracea oregona* (SC)
Shirttail Creek stonefly, *Megaleuctra sierra* (SC)
spiny rhyacophilan caddisfly, *Rhyacophila spinata* (SC)

QUAD: 541D FORESTHILL

Listed Species

Birds
bald eagle, *Haliaeetus leucocephalus* (T)

Amphibians
California red-legged frog, *Rana aurora draytonii* (T)

Fish
delta smelt, *Hypomesus transpacificus* (T)
Central Valley steelhead, *Oncorhynchus mykiss* (T) NMFS
winter-run chinook salmon, *Oncorhynchus tshawytscha* (E) NMFS

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T) NMFS
Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

Candidate Species

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C) NMFS

Species of Concern

Mammals

spotted bat, *Euderma maculatum* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

Sierra Nevada snowshoe hare, *Lepus americanus tahoensis* (SC)

Pacific fisher, *Martes pennanti pacifica* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

Birds

northern goshawk, *Accipiter gentilis* (SC)

tricolored blackbird, *Agelaius tricolor* (SC)

black tern, *Chlidonias niger* (SC)

black swift, *Cypseloides niger* (SC)

hermit warbler, *Dendroica occidentalis* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

loggerhead shrike, *Lanius ludovicianus* (SC)

Lewis' woodpecker, *Melanerpes lewis* (SC)

bank swallow, *Riparia riparia* (CA)

rufous hummingbird, *Selasphorus rufus* (SC)

Brewer's sparrow, *Spizella breweri* (SC)

California spotted owl, *Strix occidentalis occidentalis* (SC)

Reptiles

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Sagehen Creek goracean caddisfly, *Goeracea oregona* (SC)

Shirttail Creek stonefly, *Megaleuctra sierra* (SC)

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX)	*Proposed Critical Habitat*	Proposed as an area essential to the conservation of the species.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(MB)	*Migratory Bird*	Migratory bird
NMFS	NMFS species	Under the jurisdiction of the National Marine Fisheries Service. Contact them directly.
(D)	*Delisted*	Delisted. Status to be monitored for 5 years.
(CA)	*State-Listed*	Listed as threatened or endangered by the State of California.
(*)	*Extirpated*	Possibly extirpated from this quad.
(**)	*Extinct*	Possibly extinct.
	Critical Habitat	Area essential to the conservation of a species.

Endangered and Threatened Species that May Occur in or be Affected by
Projects in the Area of the Following California Counties
Reference File No. 1-1-02-SP-0610
January 15, 2002

PLACER COUNTY

Listed Species

Birds

bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

giant garter snake, *Thamnophis gigas* (T)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

Central Valley steelhead, *Oncorhynchus mykiss* (T) NMFS
Critical habitat, Central Valley steelhead, *Oncorhynchus mykiss* (T) NMFS
Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T) NMFS
Critical Habitat, Central Valley spring-run chinook, *Oncorhynchus tshawytscha* (T) NMFS
delta smelt, *Hypomesus transpacificus* (T) *
Lahontan cutthroat trout, *Oncorhynchus (=Salmo) clarki henshawi* (T)
Sacramento splittail, *Pogonichthys macrolepidotus* (T)
winter-run chinook salmon, *Oncorhynchus tshawytscha* (E) NMFS

Invertebrates

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)
vernal pool fairy shrimp, *Branchinecta lynchi* (T)
vernal pool tadpole shrimp, *Lepidurus packardi* (E)

Plants

Truckee barberry, *Berberis sonnei* (E)

Proposed Species

Birds

mountain plover, *Charadrius montanus* (PT)

Candidate Species

Birds

Western yellow-billed cuckoo, *Coccyzus americanus occidentalis* (C) *

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Plants

slender Moonwort (= narrowleaf grapefern), *Botrychium lineare* (C) *

Tahoe yellow-cress, *Rorippa subumbellata* (C)

Species of Concern

Mammals

California wolverine, *Gulo gulo luteus* (CA)
fringed myotis bat, *Myotis thysanodes* (SC)
greater western mastiff-bat, *Eumops perotis californicus* (SC)
long-eared myotis bat, *Myotis evotis* (SC)
long-legged myotis bat, *Myotis volans* (SC)
American (=pine) marten, *Martes americana* (SC)
pale Townsend's big-eared bat, *Corynorhinus (=Plecotus) townsendii pallescens* (SC)
Pacific fisher, *Martes pennanti pacifica* (SC)
Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)
spotted bat, *Euderma maculatum* (SC)
small-footed myotis bat, *Myotis ciliolabrum* (SC)
San Joaquin pocket mouse, *Perognathus inornatus* (SC)
Sierra Nevada red fox, *Vulpes vulpes necator* (CA)
Sierra Nevada snowshoe hare, *Lepus americanus tahoensis* (SC)
Yuma myotis bat, *Myotis yumanensis* (SC)

Birds

Aleutian Canada goose, *Branta canadensis leucopareia* (D)
American bittern, *Botaurus lentiginosus* (SC)
American peregrine falcon, *Falco peregrinus anatum* (D)
bank swallow, *Riparia riparia* (CA)
black swift, *Cypseloides niger* (SC)
Brewer's sparrow, *Spizella breweri* (SC)
California thrasher, *Toxostoma redivivum* (SC)
common loon, *Gavia immer* (SC)
California spotted owl, *Strix occidentalis occidentalis* (SC)
ferruginous hawk, *Buteo regalis* (SC)
grasshopper sparrow, *Ammodramus savannarum* (SC)
Harlequin duck, *Histrionicus histrionicus* (SC)
hermit warbler, *Dendroica occidentalis* (SC)
Lawrence's goldfinch, *Carduelis lawrencei* (SC)
long-billed curlew, *Numenius americanus* (SC)
Lewis' woodpecker, *Melanerpes lewis* (SC)
little willow flycatcher, *Empidonax traillii brewsteri* (CA)
northern goshawk, *Accipiter gentilis* (SC)
olive-sided flycatcher, *Contopus cooperi* (SC)
rufous hummingbird, *Selasphorus rufus* (SC)

short-eared owl, *Asio flammeus* (SC)
Swainson's hawk, *Buteo Swainsoni* (CA)
tricolored blackbird, *Agelaius tricolor* (SC)
Vaux's swift, *Chaetura vauxi* (SC)
western burrowing owl, *Athene cunicularia hypugaea* (SC)
white-faced ibis, *Plegadis chihi* (SC)

Reptiles

California horned lizard, *Phrynosoma coronatum frontale* (SC)
northwestern pond turtle, *Clemmys marmorata marmorata* (SC)
southwestern pond turtle, *Clemmys marmorata pallida* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)
Mount Lyell salamander, *Hydromantes platycephalus* (SC)
mountain yellow-legged frog, *Rana muscosa* (SC)
western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)
Pacific lamprey, *Lampetra tridentata* (SC)
river lamprey, *Lampetra ayresi* (SC)

Invertebrates

California linderiella fairy shrimp, *Linderiella occidentalis* (SC)
Lake Tahoe benthic stonefly, *Capnia lacustra* (SC)
Sagehen Creek goracean caddisfly, *Goeracea oregona* (SC)
Shirttail Creek stonefly, *Megaleuctra sierra* (SC)
South Forks ground beetle, *Nebria darlingtoni* (SC)
spiny rhyacophilan caddisfly, *Rhyacophila spinata* (SC)

Plants

Carson Range rock-cress, *Arabis rigidissima var. demota* (SC)
Red Hills soaproot, *Chlorogalum grandiflorum* (SC)
hispid bird's-beak, *Cordylanthus mollis ssp. hispidus* (SC)
Donner Pass buckwheat, *Eriogonum umbellatum var. torreyanum* (SC)
Boggs Lake hedge-hyssop, *Gratiola heterosepala* (CA)
Plumas ivesia, *Ivesia sericoleuca* (SC)
Ahart's rush, *Juncus leiospermus var. ahartii* (SC)
legenere, *Legenere limosa* (SC)
long-petaled lewisia, *Lewisia longipetala* (SC)
saw-toothed lewisia, *Lewisia serrata* (SC)
Stebbins' phacelia, *Phacelia stebbinsii* (SC)

ENCLOSURE B

The goal of the U.S. Fish and Wildlife Service is to conserve, protect and enhance fish, wildlife, and their habitats by timely and effective provision of fish and wildlife information and recommendations. To assist us in accomplishing this goal, we would like to see the items described below discussed in your environmental documents for the proposed project.

Project Description. The document should very clearly state the purposes of, and document the needs for, the proposed project so that the capabilities of the various alternatives to meet the purposes and needs can be readily determined.

A thorough description of all permanent and temporary facilities to be constructed and work to be done as a part of the project should be included. The document should identify any new access roads, equipment staging areas, and gravel processing facilities which are needed. Figures accurately depicting proposed project features in relation to natural features (such as streams, wetlands, riparian areas, and other habitat types) in the project area should be included.

Affected Environment. The document should show the location of, and describe, all vegetative cover types in the areas potentially affected by all project alternatives and associated activities. Tables with acreages of each cover type with and without the project for each alternative would also be appropriate. We recommend that all wetlands in the project area be delineated and described according to the classification system found in the Service's Classification of Wetlands and Deepwater Habitats of the United States (Cowardin 1979). The Service's National Wetland Inventory maps would be one starting point for this effort.

The document should present and analyze a full range of alternatives to the proposed project. At least one alternative should be designed to avoid all impacts to wetlands, including riparian areas. Similarly, within each alternative, measures to minimize or avoid impacts to wetlands should be included.

Lists of fish and wildlife species expected to occur in the project area should be in the document. The lists should also indicate for each species whether or not it is a resident or migrant, and the period(s) of the year it would be expected in the project area.

Environmental Consequences. The sections on impacts to fish and wildlife should discuss impacts from vegetation removal (both permanent and temporary), filling or degradation of wetlands, interruption of wildlife migration corridors, and disturbance from trucks and other machinery during construction and/or operation. These sections should also analyze possible impacts to streams from construction of outfall structures, pipeline crossings, and filling. Impacts on water quality, including nutrient loading, sedimentation, toxics, biological oxygen demand, and temperature in receiving waters should also be discussed in detail along with the resultant effects on fish and aquatic invertebrates. Discussion of indirect impacts to fish, wildlife, and their habitats, including impacts from growth induced by the proposed project, should also be addressed in the document. The impacts of each alternative should be discussed in sufficient detail to allow comparison between the alternatives.

The cumulative impacts of the project, when viewed in conjunction with other past, existing, and foreseeable projects, need to be addressed. Cumulative impacts to fish, wildlife, wetlands and other habitats, and water quality should be included.

Mitigation Planning. Under provisions of the Fish and Wildlife Coordination Act, the Service advises the U.S. Army Corps of Engineers on projects involving dredge and fill activities in "waters of the United States", of which wetlands and some riparian habitats are subcategories. Since portions of this proposal may ultimately require a Corps permit, the Service will subsequently be involved under the Coordination Act. Therefore, if you have not done so already, we suggest that you or your representative consult the Corps regarding onsite wetlands and related habitats that may fall under their jurisdiction, and include this information in the draft document. When reviewing Corps public notices, the Service generally does not object to projects meeting the following criteria:

1. They are ecologically sound;

2. The least environmentally damaging reasonable alternative is selected;

3. Every reasonable effort is made to avoid or minimize damage or loss of fish and wildlife resources and uses;

4. All important recommended means and measures have been adopted, with guaranteed implementation to satisfactorily compensate for unavoidable damage or loss consistent with the appropriate mitigation goal; and

5. For wetlands and shallow water habitats, the proposed activity is clearly water dependent and there is a demonstrated public need.

The Service may recommend the "no project" alternative for those projects which do not meet all of the above criteria, and where there is likely to be a significant fish and wildlife resource loss.

When projects impacting waterways or wetlands are deemed acceptable to the Service, we recommend full mitigation for any impacts to fish and wildlife. The Council on Environmental Quality regulations for implementing the National Environmental Policy Act define mitigation to include: 1) Avoiding the impact; 2) minimizing the impact; 3) rectifying the impact; 4) reducing or eliminating the impact over time; and 5) compensating for impacts. The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. Accordingly, we maintain that the best way to mitigate for adverse biological impacts is to avoid them altogether.

The document should describe all measures proposed to avoid, minimize, or compensate for impacts to fish and wildlife and their habitats. The measures should be presented in as much detail as possible to allow us to evaluate their probable effectiveness.

Because of their very high value to migratory birds, and their ever-increasing scarcity in California, our mitigation goal for wetlands (including riparian and riverine wetlands) is no net loss of in-kind habitat value or acreage (whichever is greater).

For unavoidable impacts, to determine the mitigation credits available for a given mitigation project, we evaluate what conditions would exist on the mitigation site in the future in the absence of the mitigation actions, and compare those conditions to the conditions we would expect to develop on the site with implementation of the mitigation plan.

Mitigation habitat should be equal to or exceed the quality of the habitat to be affected by the project. Baseline information would need to be gathered at the impact site to be able to quantify this goal in terms of plant species diversity, shrub and tree canopy cover, stems/acre, tree height, etc. The ultimate success of the project should be judged according to these same measurements at the mitigation site.

Criteria should be developed for assessing the progress of the project during its developmental stages as well. Assessment criteria should include rates of plant growth, plant health, and evidence of natural reproduction. Success criteria should be geared toward equaling or exceeding the quality of the highest quality habitat to be affected. In other words, the mitigation effort would be deemed a success in relation to this goal if the mitigation site met or exceeded habitat measurements at a "model" site (plant cover, density, species diversity, etc.).

The plan should present the proposed ground elevations at the mitigation site, along with elevations in the adjacent areas. A comparison of the soils of the proposed mitigation and adjacent areas should also be included in the plan, and a determination made as to the suitability of the soils to support habitats consistent with the mitigation goals.

Because wetland ecosystems are driven by suitable hydrological conditions, additional information must be developed on the predicted hydrology of the mitigation site. The plan should describe the depth of the water table, and the frequency, duration, areal extent, and depth of flooding which would occur on the site. The hydrologic information should include an analysis of extreme conditions (drought, flooding) as well as typical conditions.

The plan must include a timeframe for implementing the mitigation in relation to the proposed project. We recommend that mitigation be initiated prior to the onset of construction. If there will be a substantial time lag between project construction and completion of the mitigation, a net loss of habitat values would result, and more mitigation would be required to offset this loss.

Generally, monitoring of the mitigation site should occur annually for at least the first five years, biennially for years 6 through 11, and every five years thereafter until the mitigation has met all success criteria. Remediation efforts and additional monitoring should occur if success criteria are not met during the first five years. Some projects will require monitoring throughout the life of the project. Reports should be prepared after each monitoring session.

The plan should require the preparation of "as-built" plans. Such plans provide valuable information, especially if the mitigation effort fails. Similarly, a "time-zero" report should be mandated. This report would describe exactly what was done during the construction of the mitigation project, what problems were encountered, and what corrections or modifications to the plans were undertaken.

The plan should detail how the site is to be maintained during the mitigation establishment period, and how long the establishment period will be. It will also be important to note what entity will perform the maintenance activities, and what entity will ultimately own and manage the site. In addition, a mechanism to fund the maintenance and management of the site should be established and identified. A permanent easement should be placed on the property used for the mitigation that would preclude incompatible activities on the site in perpetuity.

Finally, in some cases, a performance bond may be required as part of the mitigation plan. The amount of the bond should be sufficient to cover the costs of designing and implementing an adequate mitigation plan (and purchasing land if needed) should the proposed plan not succeed.

Reference

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. FWS/OBS-79/31. U.S. Fish and Wildlife Service, Washington, D.C. 103 pp.

United States Department of Agriculture
Forest Service
Foresthill Ranger District
22830 Foresthill Road
Foresthill, CA 95631
530-367-2224
530-367-2226 TDD
530-367-2992 FAX

File Code: 1920
Date: JAN 2 5 2002

PLACER COUNTY
DATE
RECEIVED
JAN 2 8 2002
PLANNING DEPARTMENT

Dean Prigmore
Placer County Planning Department
11414 "B" Avenue
Auburn, CA 95603

Dear Mr. Prigmore:

I have reviewed the Notice of Preparation and associated documents regarding the Draft Environmental Impact Report for the Forest Ranch development (EIAQ-3656) in Foresthill. In a telephone conversation with Acting Public Service Officer Mo Tebbe, you stated this was a programmatic DEIR. It is our understanding that if/when a site specific EIR for Forest Ranch is developed, it will tier to this programmatic EIR.

The Forest Service has the following general concerns:

- With regards to public safety: the Foresthill Ranger District provides year round and diverse recreational opportunities and attracts visitors from far and near. All of the Foresthill Ranger District is accessed by Foresthill Road, as are portions of the Truckee and Georgetown Ranger Districts. The traffic on Foresthill Road flows well until reaching the one lane, and older, segments of the road. The Foresthill community currently experiences periods of congestion, including on the weekends. In addition, we want people to safely reach their destination points. There are several National Forest recreational destinations out the Mosquito Ridge Road, as well as further up Foresthill Divide Road. Also, the Foresthill Road is a 'haul route' for timber harvested from private and public lands, providing large truck traffic.

  The increase of population related to this proposal could lead to additional road use, congestion, and potential of accidents. This issue is highly likely to be one of significance as additional residences commute to work, school, and 'off-hill' amenities, and as people destined for the Forest Ranch RV Park and golf course come into Foresthill.

- Under cooperative protection agreement, the Forest Service provides mutual aid to the Foresthill Fire Protection District and CDF for emergency services (wild land and structure fires, medical aids and accidents). Unlike Foresthill CDF, the Forest Service is staffed year round. With an increase in traffic and population living in a wild land environment, it could be anticipated there would be a correlated increase in responses,

with associated costs. If there were an emergency worthy of evacuation, the Forest Service would be involved; and again the issue of public safety and transportation arises since Foresthill Road is the best, although not the only way, to leave the area.

The analysis should address the addition of people and animals that would need to be evacuated to safe zones in a timely manner should such an emergency take place. Also, the analysis should address the impact to public services such as emergency services.

- It is my understanding that under the programmatic EIR there are no foreseen access needs onto, or across, National Forest lands for roads, utilities, or trails. However, should this change under the site specific plan, the Forest Service would need a sufficient document meeting the National Environment Planning Act, including a Biological Evaluation, to issue Special Use Permits, Easements, or Rights of Way.

- There are two developed National Forest areas immediately adjacent to the planned Forest Ranch. One of these developments is the Administrative Residence area currently housing employees; we would want appropriate activities adjacent to this area for residential security, quiet, and safety.

  The other developed area is industrial in nature and is called the Foresthill Work Center. The Forest Service Emergency Response teams are located at this center, as are Forest Service fleet and barracks. The work center occasionally experiences 24-hour a day activity. Noise and light impacts occur.

- The Sierra Nevada Forest Plan Amendment (called the Framework) currently guides National Forest planning for portions of the Sierra Nevada. The Framework provides for threat and defense protection areas. We request a 1:24,000 scale map of the entire Forest Ranch showing surrounding National Forest lands to determine if threat and defense zones on National Forest land would need to be designated and addressed by this Agency. This map would be valuable at this time, as this planning is in progress.

Please completely display and evaluate the cumulative effects to public safety, transportation, and community services such as emergency responses.

Thank you for the opportunity to provide input to this phase of the analysis. We would like to continue to be involved in this project. If you should want to contact the Public Service's Officer, or myself, please call (530) 478-6254.

Sincerely,

RICHARD A. JOHNSON
District Ranger

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390

January 9, 2002

PLACER COUNTY
DATE
RECEIVED
JAN 10 2002 DP

PLANNING DEPARTMENT

Mr. Dean Prigmore
Placer County Planning Department
11414 B Avenue
Auburn, California 95603

RE: SCH# 2001122105 Forest Ranch

Dear Mr. Prigmore:

The Native American Heritage Commission has reviewed the above mentioned NOP. To adequately assess and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

1. Contact the appropriate Information Center for a record search. The record search will determine:
   - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
   - If any known cultural resources have already been recorded on or adjacent to the APE.
   - If the probability is low, moderate, or high that cultural resources are located in the APE.
   - If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
   - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
   - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
3. Contact the Native American Heritage Commission for:
   - A Sacred Lands File Check.
   - A list of appropriate Native American Contacts for consultation concerning the project site and to assist in the mitigation measures.
4. Lack of surface evidence of archeological resources does not preclude their subsurface existence.
   - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
   - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
   - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5 (e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

If you have any questions, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

CC: State Clearinghouse

DEPARTMENT OF TRANSPORTATION
DISTRICT 3, SACRAMENTO AREA OFFICE – MS 41
P. O. BOX 942874
SACRAMENTO, CA 94274-0001
PHONE (916) 327-3859
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January 28, 2002

01PLA0142
Forest Ranch (EIAQ- 3656)
NOP EIR
03PLA080 PM 19.456

Dean Prigmore
Placer County Planning Department
11414 B Avenue
Auburn, CA 95603

Dear Mr. Prigmore:

Thank you for the opportunity to comment on the proposed Forest Ranch. Our comments are as follows:

- A traffic impact study (TIS) should be prepared to assess the project impacts to Interstate 80 and all associated access roads. The "Guide for the Preparation of Traffic Impact Studies" is enclosed for reference.

- The TIS should include an analysis of all four intersections at the Auburn Ravine/Foresthill Interchange at Interstate 80. It should by analyzed from 3:00 to 6:00 PM on a weekday when schools are in session. This project could lengthen the peak period congestion, as well as impact the peak hour. An analysis should be provided for the twenty-year "buildout" scenario, with and without the proposed General Plan Amendment. An analysis of a five or ten year scenario may be necessary to determine appropriate mitigation measures for this development.

- The TIS should incorporate the following scenarios:

  -Existing conditions without the project (current year).
  -Existing conditions plus any proposed phasing of the project.
  -Cumulative conditions (without the project).
  -Cumulative conditions (with project build-out).

- The TIS should provide a Level of Service (LOS) analysis for freeways, ramps and ramp terminal intersections. A merge/diverge analysis should be performed for freeway and ramp junctions, all analysis should be based on AM and PM peak hour volumes. The analysis should include the (individual, not averaged) LOS and traffic volumes applicable to all intersection road approaches and turn movements. The procedures contained in the 1997 Update to the

Highway Capacity Manual along with the Guide for the Preparation of Traffic Impact Studies should be used as a guide for the TIS.

- Mitigation measures should be identified where the project would have a significant impact. Caltrans considers the following to be significant impacts:

  -Off-ramps with vehicle queues that extend into the ramp's deceleration area or onto the freeway.
  -Vehicle queues at intersections that exceed existing lane storage.
  -Project traffic impacts that cause any ramp's merge/diverge Level of Service (LOS) to be worse than the freeway's LOS.
  -Project impacts that cause the freeway or intersection LOS to deteriorate beyond LOS E for freeway and LOS D for highway and intersections. If the LOS is already "E" or "F", then a quantitative measure of increased queue lengths and delay should be used to determine appropriate mitigation measures.

  Possible mitigation measures to consider include:

  -Widening interchange ramps to increase capacity.
  -Modifying ramp terminal intersections.
  -Adding auxiliary lanes between interchanges.
  -Increasing the ramp acceleration or deceleration lane length to improve merge/diverge operations.
  -Adding signalization and ramp intersection geometric improvements at impacted intersections.

- The analysis of future traffic impacts should be based on a 20 year planning horizon.

- Future transportation systems assumed for cumulative conditions should only include those improvements that are included in the most recent approved Placer County Transportation Planning Agency Regional Transportation Plan.

- A Caltrans Encroachment Permit will be required for any work conducted within State right-of-way. Please contact Mr. Bruce Capaul, Caltrans, District 3 Office of Permits, at (530) 741-4408, for an application and assistance.

Please provide Caltrans with a copy of the draft traffic study. If you have any questions regarding these comments, please contact Jennifer Hayes at (916) 324-6634.

Sincerely,

JEFFREY PULVERMAN, Chief
Office Of Regional Planning



GUIDE FOR THE PREPARATION

OF

TRAFFIC IMPACT STUDIES

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

January 2001

PREFACE

The California Department of Transportation (Caltrans) has developed this "Guide for the Preparation of Traffic Impact Studies" in response to a survey of cities and counties in California. The purpose of that survey was to improve the Caltrans local development review process (also known as the Intergovernmental Review/California Environmental Quality Act or IGR/CEQA process). The survey indicated that approximately 30 percent of the respondents were not aware of what Caltrans required in a traffic impact study (TIS).

In the early 1990s, the Caltrans District 6 office located in Fresno identified a need to provide better quality and consistency in the analysis of traffic impacts generated by local development and land use change proposals that effect State highway facilities. At that time District 6 brought together both public and private sector expertise to develop a traffic impact study guide. The District 6 guide has proven to be successful at promoting consistency and uniformity in the identification and analysis of traffic impacts generated by local development and land use changes.

The guide developed in Fresno was adapted for statewide use by a team of Headquarters and district staff. The guide will provide consistent guidance for Caltrans staff who review local development and land use change proposals as well as inform local agencies of the information needed for Caltrans to analyze the traffic impacts to State highway facilities. The guide will also benefit local agencies and the development community by providing more expeditious review of local development proposals.

Even though sound planning and engineering practices were used to adapt the Fresno TIS guide, it is anticipated that changes will occur over time as new technologies and more efficient practices become available. To facilitate these changes, Caltrans encourages all those who use this guide to contact their nearest district office (i.e., IGR/CEQA Coordinators) to coordinate any changes with the development team.

ACKNOWLEDGEMENTS

The District 6 traffic impact study guide provided the impetus and a starting point for developing the statewide guide. Special thanks is given to Marc Birnbaum for recognizing the need for a TIS guide and for his valued experience and vast knowledge of land use planning to significantly enhance the effort to adapt the District 6 guide for statewide use. Randy Treece from District 6 provided many hours of coordination, research and development of the original guide and should be commended for his diligent efforts. Sharri Bender Ehlert of District 6 provided much of the technical expertise in the adaptation of the District 6 guide and her efforts are greatly appreciated.

A special thanks is also given to all those Cities, Counties, Regional Agencies, Congestion Management Agencies, Consultants, and Caltrans Employees who reviewed the guide and provided input during the development of this Guide for the Preparation of Traffic Impact Studies.

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Appendix "C" Measures of Effectiveness by Facility Type

I. INTRODUCTION

Caltrans desires to provide a safe and efficient State transportation system for the citizens of California pursuant to various Sections of the California Streets and Highway Code. This is done in partnership with local and regional agencies through procedures established by the California Environmental Quality Act (CEQA) and other land use planning processes. The intent of this guide is to provide a starting point and a consistent basis in which Caltrans evaluates traffic impacts to State highway facilities. The applicability of this guide for local streets and roads (non-State highways) is at the discretion of the effected jurisdiction.

Caltrans reviews federal, state, and local agency development projects[1], and land use change proposals for their potential impact to State highway facilities. The primary objectives of this guide is to provide:

- guidance in determining if and when a traffic impact study (TIS) is needed,
- consistency and uniformity in the identification of traffic impacts generated by local land use proposals,
- consistency and equity in the identification of measures to mitigate the traffic impacts generated by land use proposals,
- lead agency[2] officials with the information necessary to make informed decisions regarding the existing and proposed transportation infrastructure (see Appendix A, Minimum Contents of a TIS)
- TIS requirements early in the planning phase of a project (i.e., initial study, notice of preparation, or earlier) to eliminate potential delays later,
- a quality TIS by agreeing to the assumptions, data requirements, study scenarios, and analysis methodologies in advance of beginning the study, and
- early coordination during the planning phases of a project to reduce the time and cost of preparing a TIS.

II. WHEN A TRAFFIC IMPACT STUDY IS NEEDED

The level of service[3] (LOS) for operating State highway facilities is based upon measures of effectiveness (MOEs). These MOEs (see Appendix "C-2") describe the measures best suited for analyzing State highway facilities (i.e., freeway sections, signalized intersections, on- or off-ramps, etc.). Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" (see Appendix "C-3") on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained.

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[1] "Project" refers to activities directly undertaken by government, financed by government, or requiring a permit or other approval from government as defined in Section 21065 of the Public Resources Code and Section 15378 of the California Code of Regulations.

[2] "Lead Agency" refers to the public agency that has the principal responsibility for carrying out or approving a project. Defined in Section 21165 of the Public Resources Code, the "California Environmental Quality Act, and Section 15367 of the California Code of Regulations.

[3] "Level of service" as defined in the latest edition of the Highway Capacity Manual, Special Report 209, Transportation Research Board, National Research Council.

A. Trip Generation Thresholds

The following criterion is a starting point in determining when a TIS is needed. When a project:

1. Generates over 100 peak hour trips assigned to a State highway facility
2. Generates 50 to 100 peak hour trips assigned to a State highway facility – and, affected State highway facilities are experiencing noticeable delay; approaching unstable traffic flow conditions (LOS "C" or "D").
3. Generates 1 to 49 peak hour trips assigned to a State highway facility – the following are examples that may require a full TIS or some lesser analysis[4]:
    a. Affected State highway facilities experiencing significant delay; unstable or forced traffic flow conditions (LOS "E" or "F").
    b. The potential risk for a traffic incident is significantly increased (i.e., congestion related collisions, non-standard sight distance considerations, increase in traffic conflict points, etc.).
    c. Change in local circulation networks that impact a State highway facility (i.e., direct access to State highway facility, a non-standard highway geometric design, etc.).

Note: A traffic study may be as simple as providing a traffic count to as complex as a microscopic simulation. The appropriate level of study is determined by the particulars of a project, the prevailing highway conditions, and the forecasted traffic.

B. Exceptions

Exceptions require consultation between the lead agency, Caltrans, and those preparing the TIS. When a project's traffic impact to a State highway facility can clearly be anticipated without a study and all the parties involved (lead agency, developer, and the Caltrans district office) are able to negotiate appropriate mitigation, a TIS may not be necessary.

C. Updating An Existing Traffic Impact Study

A TIS requires updating when the amount or character of traffic is significantly different from an earlier study. Generally a TIS requires updating every two years. A TIS may require updating sooner in rapidly developing areas and not as often in slower developing areas. In these cases, consultation with Caltrans is strongly recommended.

III. SCOPE OF TRAFFIC IMPACT STUDY

Consultation between the lead agency, Caltrans, and those preparing the TIS is recommended before commencing work on the study to establish the appropriate scope. At a minimum, the TIS should include the following:

A. Boundaries of the Traffic Impact Study

All State highway facilities impacted in accordance with the criteria in Section II should be studied. Traffic impacts to local streets and roads can impact intersections with State highway facilities. In these cases, the TIS should include an analysis of adjacent local facilities, upstream and downstream, of the intersection (i.e., driveways, intersections, and interchanges) with the State highway.

[4] A "lesser analysis" may include obtaining traffic counts, preparing signal warrants, or a focused TIS, etc.

B. Traffic Analysis Scenarios

Caltrans is interested in the effects of general plan updates and amendments as well as the effects of specific project entitlements (i.e., site plans, conditional use permits, sub-divisions, rezoning, etc.) that have the potential to impact a State highway facility. The complexity or magnitude of the impacts of a project will normally dictate the scenarios necessary to analyze the project. Consultation between the lead agency, Caltrans, and those preparing the TIS is recommended to determine the appropriate scenarios for the analysis. The following scenarios should be addressed in the TIS when appropriate:

1. When only a general plan amendment or update is being sought, the following scenarios are required:
   a) Existing Conditions - Current year traffic volumes and peak hour LOS analysis of effected State highway facilities.
   b) Proposed Project Only with Select Link[5] Analysis - Trip generation and assignment for build-out of general plan.
   c) General Plan Build-out Only - Trip assignment and peak hour LOS analysis. Include current land uses and other pending general plan amendments.
   d) General Plan Build-out Plus Proposed Project - Trip assignment and peak hour LOS analysis. Include proposed project and other pending general plan amendments.

2. When a general plan amendment is not proposed and a proposed project is seeking specific entitlements (i.e., site plans, conditional use permits, sub-division, rezoning, etc.), the following scenarios must be analyzed in the TIS:
   a) Existing Conditions - Current year traffic volumes and peak hour LOS analysis of effected State highway facilities.
   b) Proposed Project Only - Trip generation, distribution, and assignment in the year the project is anticipated to complete construction.
   c) Cumulative Conditions (Existing Conditions Plus Other Approved and Pending Projects Without Proposed Project) - Trip assignment and peak hour LOS analysis in the year the project is anticipated to complete construction.
   d) Cumulative Conditions Plus Proposed Project (Existing Conditions Plus Other Approved and Pending Projects Plus Proposed Project) - Trip assignment and peak hour LOS analysis in the year the project is anticipated to complete construction.
   e) Cumulative Conditions Plus Proposed Phases (Interim Years) - Trip assignment and peak hour LOS analysis in the years the project phases are anticipated to complete construction.
3. In cases where the circulation element of the general plan is not consistent with the land use element or the general plan is outdated and not representative of current or future forecasted conditions, all scenarios from Sections III. B. 1. and 2. should be utilized with the exception of duplicating of item 2.a.

[5] "Select link" analysis represents a project only traffic model run, where the project's trips are distributed and assigned along the highway network. This procedure isolates the specific impact on the State highway network.

IV. TRAFFIC DATA

Prior to any fieldwork, consultation between the lead agency, Caltrans, and those preparing the TIS is recommended to reach consensus on the data and assumptions necessary for the study. The following elements are a starting point in that consideration.

A. Trip Generation

The latest edition of the Institute of Transportation Engineers' (ITE) TRIP GENERATION report should be used for trip generation forecasts. Local trip generation rates are also acceptable if appropriate validation is provided to support them.

1. Trip Generation Rates – When the land use has a limited number of studies to support the trip generation rates or when the Coefficient of Determination (R^2) is below 0.75, consultation between the lead agency, Caltrans and those preparing the TIS is recommended.
2. Pass-by Trips[6] – Pass-by trips are only considered for retail oriented development. Reductions greater than 15% requires consultation and acceptance by Caltrans. The justification for exceeding a 15% reduction should be discussed in the TIS.
3. Captured Trips[7] – Captured trip reductions greater than 5% requires consultation and acceptance by Caltrans. The justification for exceeding a 5% reduction should be discussed in the TIS.
4. Transportation Demand Management (TDM) – Consultation between the lead agency and Caltrans is essential before applying trip reduction for TDM strategies.

NOTE: Reasonable reductions to trip generation rates are considered when adjacent State highway volumes are sufficient (at least 5000 ADT) to support reductions for the land use.

B. Traffic Counts

Prior to field traffic counts, consultation between the lead agency, Caltrans and those preparing the TIS is recommended to determine the level of detail (e.g., location, signal timing, travel speeds, turning movements, etc.) required at each traffic count site. All State highway facilities within the boundaries of the TIS should be considered. Common rules for counting vehicular traffic include but are not limited to:

1. Vehicle counts should be conducted on Tuesdays, Wednesdays, or Thursdays during weeks not containing a holiday and conducted in favorable weather conditions.
2. Vehicle counts should be conducted during the appropriate peak hours (see peak hour discussion below).
3. Seasonal and weekend variations in traffic should also be considered where appropriate (i.e., recreational routes, tourist attractions, harvest season, etc.).

C. Peak Hours

To eliminate unnecessary analysis, consultation between the lead agency, Caltrans and those preparing the TIS is recommended during the early planning stages of a project. In general, the TIS should include a morning (a.m.) and an evening (p.m.) peak hour analyses. Other peak hours (e.g., 11:30 a.m. to 1:30 p.m., weekend, holidays, etc.) may also be required to determine the significance of the traffic impacts generated by a project.

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[6] "Pass-by" trips are made as intermediate stops between an origin and a primary trip destination (i.e., home to work, home to shopping, etc.).

[7] "Captured Trips" are trips that do not enter or leave the driveways of a project's boundary within a mixed-use development.

D. Travel Forecasting (Transportation Modeling)

The local or regional traffic model should reflect the most current land use and planned improvements (i.e., where programming or funding is secured). When a general plan build-out model is not available, the closest forecast model year to build-out should be used. If a traffic model is not available, historical growth rates and current trends can be used to project future traffic volumes. The TIS should clearly describe any changes made in the model to accommodate the analysis of a proposed project.

V. TRAFFIC IMPACT ANALYSIS METHODOLOGIES

Typically, the traffic analysis methodologies for the facility types indicated below are used by Caltrans and will be accepted without prior consultation. When a State highway has saturated flows, the use of a micro-simulation model is encouraged for the analysis. Other analysis methods may be accepted, however, consultation between the lead agency, Caltrans and those preparing the TIS is recommended to agree on the information necessary for the analysis.

A. Freeway Sections – Highway Capacity Manual (HCM)* Chapter 3, operational analysis
B. Weaving Areas – Caltrans Highway Design Manual (HDM) Chapter 500
C. Ramps and Ramp Junctions – HCM* Chapter 5, operational analysis or Caltrans HDM Chapters 400 and 500, Caltrans Ramp Metering Guidelines (most recent edition)
D. Multi-Lane Rural and Urban Highways – HCM* Chapter 7, operational analysis
E. Two-lane Highways – HCM* Chapter 8, operational analysis
F. Signalized Intersections[8] – HCM* Chapter 9, Highway Capacity Software**, operational analysis, TRAFFIX™**, Synchro**, see footnote 8
G. Unsignalized Intersections – HCM* Chapter 10, operational analysis, Caltrans Traffic Manual for signal warrants if a signal is being considered
H. Transit Capacity – HCM* Chapter 12, operational analysis
I. Pedestrians - HCM* Chapter 13
J. Bicycles – HCM* Chapters 14, use operational analysis when applying Chapter 9 and 10 HCM methods to bicycle analysis
K. Caltrans Criteria/Warrants – Caltrans Traffic Manual (stop signs, traffic signals, freeway lighting, conventional highway lighting, school crossings)
L. Channelization – Caltrans guidelines for Reconstruction of Intersections, August 1985, Ichiro Fukutome

*The most current edition of the Highway Capacity Manual, Special Report 209, Transportation Research Board, National Research Council, should be used.

**NOTE: Caltrans does not officially advocate the use of any special software. However, consistency with the HCM is advocated in most but not all cases. The Caltrans local development review units utilize the software mentioned above. If different software or analytical techniques are used for the TIS then consultation between the lead agency, Caltrans and those preparing the TIS is recommended. Results that are significantly different than those produced with the analytical techniques above should be challenged.

[8] The procedures in the Highway Capacity Manual "do not explicitly address operations of closely spaced signalized intersections. Under such conditions, several unique characteristics must be considered, including spill-back potential from the downstream intersection to the upstream intersection, effects of downstream queues on upstream saturation flow rate, and unusual platoon dispersion or compression between intersections. An example of such closely spaced operations is signalized ramp terminals at urban interchanges. Queue interactions between closely spaced intersections may seriously distort the procedures in" the HCM. Scope of Manual, page 1-2, Highway Capacity Manual, Special Report 209, updated December 1997.

VI. MITIGATION MEASURES

The TIS should provide the nexus [Nollan v. California Coastal Commission, 1987, 483 U.S. 825 (108 S.Ct. 314)] between a project and the traffic impacts to State highway facilities. The TIS should also establish the rough proportionality [Dolan v. City of Tigard, 1994, 512 U.S. 374 (114 S. Ct. 2309)] between the mitigation measures and the traffic impacts. One method for establishing the rough proportionality or a project proponent's equitable responsibility for a project's impacts is provided in Appendix "B." Consultation between the lead agency, Caltrans and those preparing the TIS is recommended to reach consensus on the mitigation measures and who will be responsible.

Mitigation measures must be included in the traffic impact analysis. This determines if a project's impacts can be eliminated or reduced to a level of insignificance. Eliminating or reducing impacts to a level of insignificance is the standard pursuant to CEQA and the National Environmental Policy Act (NEPA). The lead agency is responsible for administering the CEQA review process and has the principal authority for approving a local development proposal or land use change. Caltrans, as a responsible agency, is responsible for reviewing the TIS for errors and omissions that pertain to State highway facilities. The authority vested in the lead agency to administer the CEQA process does not take precedence over other authorities in law.

If the mitigation measures require work in the State highway right-of-way an encroachment permit from Caltrans will be required. This work will also be subject to Caltrans standards and specifications. Consultation between the lead agency, Caltrans and those preparing the TIS early in the planning process is strongly recommended to expedite the review of local development proposals and to reduce conflicts and misunderstandings in both the local agency CEQA review process as well as the Caltrans encroachment permit process.

APPENDIX "A"

MINIMUM CONTENTS

OF A

TRAFFIC IMPACT STUDY

MINIMUM CONTENTS OF TRAFFIC IMPACT STUDY REPORT

I. EXECUTIVE SUMMARY

II. TABLE OF CONTENTS

A. List of Figures (Maps)
B. List of Tables

III. INTRODUCTION

A. Description of the proposed project
B. Location of project
C. Site plan including all access to State highways (site plan, map)
D. Circulation network including all access to State highways (vicinity map)
E. Land use and zoning
F. Phasing plan including proposed dates of project (phase) completion
G. Project sponsor and contact person(s)
H. References to other traffic impact studies

IV. TRAFFIC ANALYSIS

A. Clearly stated assumptions
B. Existing and projected traffic volumes (including turning movements), facility geometry (including storage lengths), and traffic controls (including signal phasing and multi-signal progression where appropriate) (figure)
C. Project trip generation including references (table)
D. Project generated trip distribution and assignment (figure)
E. LOS and warrant analyses - existing conditions, cumulative conditions, and full build of general plan conditions with and without project

V. CONCLUSIONS AND RECOMMENDATIONS

A. LOS and appropriate MOE quantities of impacted facilities with and without mitigation measures
B. Mitigation phasing plan including dates of proposed mitigation measures
C. Define responsibilities for implementing mitigation measures
D. Cost estimates for mitigation measures and financing plan

VI. APPENDICES

A. Description of how traffic data was collected
B. Description of methodologies and assumptions used in analyses
C. Worksheets used in analyses (i.e., signal warrant, LOS, traffic count information, etc.)

APPENDIX "B"

METHODOLOGY FOR

CALCULATING EQUITABLE

MITIGATION MEASURES

METHOD FOR CALCULATING EQUITABLE MITIGATION MEASURES

The methodology below is neither intended as, nor does it establish, a legal standard for determining equitable responsibility and cost of a project's traffic impact, the intent is to provide:

1. A starting point for early discussions to address traffic mitigation equitably.
2. A means for calculating the equitable share for mitigating traffic impacts.
3. A means for establishing rough proportionality [Dolan v. City of Tigard, 1994, 512 U.S. 374 (114 S. Ct. 2309)].

The formulas should be used when:

- A project has impacts that do not immediately warrant mitigation, but their cumulative effects are significant and will require mitigating in the future.
- A project has an immediate impact and the lead agency has assumed responsibility for addressing operational improvements

NOTE: This formula is not intended for circumstances where a project proponent will be receiving a substantial benefit from the identified mitigation measures. In these cases, (e.g., mid-block access and signalization to a shopping center) the project should take full responsibility to toward providing the necessary infrastructure.

EQUITABLE SHARE RESPONSIBILITY: **Equation C-1**
NOTE: $T_E < T_B$, see explanation for T_B below.

$$P = \frac{T}{T_B - T_E}$$

Where:

P = The equitable share for the proposed project's traffic impact.
T = The vehicle trips generated by the project during the peak hour of adjacent State highway facility in vehicles per hour, vph.
T_B = The forecasted traffic volume on an impacted State highway facility at the time of general plan build-out (e.g., 20 year model or the furthest future model date feasible), vph.
T_E = The traffic volume existing on the impacted State highway facility plus other approved projects that will generate traffic that has yet to be constructed/opened, vph.

EQUITABLE COST: **Equation C-2**

$$C = P\ (C_T)$$

Where:

C = The equitable cost of traffic mitigation for the proposed project, ($). (Rounded to nearest one thousand dollars)
P = The equitable share for the project being considered.
C_T = The total cost estimate for improvements necessary to mitigate the forecasted traffic demand on the impacted State highway facility in question at general plan build-out, ($).

NOTES

1. Once the equitable share responsibility and equitable cost has been established on a per trip basis, these values can be utilized for all projects on that State highway facility until the forecasted general plan build-out model is revised.
2. Truck traffic should be converted to passenger car equivalents before utilizing these equations (see the Highway Capacity Manual for converting to passenger car equivalents).

APPENDIX "C"

MEASURES OF EFFECTIVENESS

BY

FACILITY TYPE

MEASURES OF EFFECTIVENESS BY FACILITY TYPE

TYPE OF FACILITY	MEASURE OF EFFECTIVENESS
Freeways	
Basic Freeway Segments	Density (pc/mi/ln)
Weaving Areas	Density (pc/mi/ln)
Ramp Junctions	Flow Rates (pcph)
Multi-Lane Highways	Density (pc/mi/ln) Free-Flow Speed (mph)
Two-Lane Highways	Time Delay (percent)
Signalized Intersections	Average Control Delay (sec/veh)
Unsignalized Intersections	Average Control Delay (sec/veh)
Arterials	Average Travel Speed (mph)
Transit	Load Factor (pers/seat, veh/hr, people/hr)
Pedestrians	Space (sq. ft./ped)

Measures of effectiveness for level of service definitions located in table 1-2, Chapter 1, of the 1997 Highway Capacity Manual, Special Report 209, Transportation Research Board, National Research Council.

Transition between LOS "C" and LOS "D" Criteria
(Reference 1997 Highway Capacity Manual)

Basic Freeway Sections

LOS	Maximum Density (pc/mi/ln)	Minimum Speed (mph)	Maximum Service Flow Rate (pcphpl)	Maximum Volume/Capacity Ratio
	Free-Flow Speed = 70 mph			
A	10.0	70.0	700	0.29
B	16.0	70.0	1120	0.47
C	24.0	68.0	1632	0.68
D	32.0	64.0	2048	0.85
E	45.0	53.0	2400	1.00
F	var	var	var	var

Weaving Areas

LOS	MAXIMUM DENSITY (pc/mi/ln)	
	Freeway Weaving Area	Multi-lane and C - D Weaving Areas
A	10	12
B	20	24
C	28	32
D	35	36
E	<= 43	<= 40
F	> 43	>40

Ramp-Freeway Junction Areas of Influence

LOS	Maximum Density (Primary Measure) (pc/mi/ln)	Minimum Speed (Secondary Measure) (MPH)
A	10	58
B	20	56
C	28	52
D	35	46
E	> 35	42
F	[a]	[a]

[a] Demand flows exceed limits of table 5-1.

Signalized Intersections

LOS	Control Delay Per Vehicle (sec)
A	10
B	20
C	35
D	55
E	80
F	> 80

Dotted line represents the transition between LOS "C" and LOS "D"

Gray Davis
Governor

Maria Contreras-Sweet
Secretary, Business, Transportation and Housing Agency

Jeff Morales
Director, California Department of Transportation

Kim Nystrom
Program Manager, Traffic Operations

For additional copies of these guidelines, please contact Tom Persons at, Tom_Persons@dot.ca.gov.

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
NEVADA-YUBA-PLACER UNIT
13760 Lincoln Way
Auburn, CA 95603
(530) 889-0111 X 107

PLACER COUNTY
DATE
RECEIVED
JAN 22 2002
PLANNING DEPARTMENT

January 17, 2001

Dean Prigmore
Placer County Planning Dept.
11414 B Ave.
Auburn CA 95603

I am writing in regard to the Forest Ranch (SCH # 2001122105) Notice of Preparation for draft environmental impact report.

The specific impacts CDF requests to be evaluated in this EIR are:

1. The historic and prehistoric sites identified in the survey area for THP 2-97-070 PLA.

2. The decrease in timber base and impact on future timber supply in the county as a result of the project.

3. A discussion of the cover type, including commercial species, density, age, and size composition affected by project.

4. The soils, slopes and aspects affected by project.

5. Potential effects on wildfire prevention and control and vegetation management.

6. The trend this amendment will have toward more zoning changes and conversion on other parcels in the Foresthill area.

7. Restriction on timber harvesting and management on neighboring parcels.

8. Any significant problems that may affect this amendment.

CDF requests that an alternative site in oak-woodland habitat be evaluated for the proposed development. This alternative avoids impacts to commercial timberland and farm land.

I am also providing additional information and comments on materials in the package from the State Clearinghouse. The following comments refer to the Environmental Impact Assessment Questionnaire.

p.2 item 14, natural economic resources. The response states there is immature timber not viable for re-harvesting for 20-30 years.

There is an active timber harvesting plan on the property (THP 2-97-070 PLA). Most of the property has been logged and most of the merchantable timber removed. However,

there are portions of the property where proposed helicopter yarding has not been done. The timberland is highly productive and portions could be harvested in less than 20 years.

p.6 item 56, historical, archaeological, or cultural features. The response states none are known.

An archaeological survey was conducted as part of the planning process for THP 2-97-070 PLA. At least 40 historic and prehistoric sites were identified in the survey area.

p.7 item 75. Displace currently productive use. The response states the proposal will not displace any currently productive use.

Most of the property is highly productive timberland. Besides timber production, the forest provides fish and wildlife habitat, aesthetics, water, and other benefits.

CDF is concerned about rezoning and conversion of timberland to other uses because it conflicts with CDF's mission and with the Forest Practice Act, especially Public Resources Code sections 4512 and 4513.

4512. Findings and declarations.
(a) The Legislature hereby finds and declares that the forest resources and timberlands of the state are among the most valuable of the natural resources of the state and that there is great concern throughout the state relating to their utilization, restoration, and protection.
(b) The Legislature further finds and declares that the forest resources and timberlands of the state furnish high-quality timber, recreational opportunities, and aesthetic enjoyment while providing watershed protection and maintaining fisheries and wildlife.
(c) The Legislature thus declares that it is the policy of this state to encourage prudent and responsible forest resource management calculated to serve the public's need for timber and other forest products, while giving consideration to the public's need for watershed protection, fisheries and wildlife, and recreational opportunities alike in this and future generations.
(d) It is not the intent of the Legislature by the enactment of this chapter to take private property for public use without payment of just compensation in violation of the California and United States Constitutions.

4513. Intent of Legislature. It is the intent of the Legislature to create and maintain an effective and comprehensive system of regulation and use of all timberlands so as to assure that:
(a) Where feasible, the productivity of timberlands is restored, enhanced, and maintained.
(b) The goal of maximum sustained production of high-quality timber products is achieved while giving consideration to values relating to recreation, watershed, wildlife, range and forage, fisheries, regional economic vitality, employment, and aesthetic enjoyment.

The Land Use and Planning section of the Forest Ranch (EIAQ-3656) Probable Environmental Effects document discusses some of the environmental issues for the proposed general plan amendment. As mentioned earlier, the property in question is highly productive. Two separate non-industrial timber management plans were prepared for this property in 1993 and 1994 (NTMP 2-93-3 and NTNP 2-94-3). The forester who prepared the plans segregated the different timber stand types and estimated their current and projected growth rates. The forester estimated that over 2000 acres of the property is capable of producing 600-800 board feet of timber per acre per year with proper timber management. With the recent timber harvesting in the last decade the amount of timber on site dwindled. But in the long term, this property could, with proper management, grow 1.2 to 1.6 million board feet of timber per year. I estimate that is enough to build about 150 homes per year. Also for comparison, the Sierra Pacific Industries lumber mill in Lincoln

processes about 150 million board feet of logs per year. If aggressive management was provided, this property could annually supply nearly 1% of the raw material for the Lincoln sawmill. Converting this timberland to other uses will lower productivity and reduce the timber supply in the region.

Please contact me if you have any questions.

Very truly yours,

Gary Brittner
Division Chief

CC: Allen Robertson

FORESTHILL FIRE DEPT.

Foresthill Fire Protection District
P.O. Box 1099 • Foresthill, CA 95631
(530) 367-3498

PLACER COUNTY
DATE
RECEIVED
JAN 22 2002
DP
PLANNING DEPARTMENT

January 17, 2002

Placer County Planning Department
11414 "B" Avenue
Auburn, CA. 95603

Attn.: Dean Prigmore

Subject: Forest Ranch

Mr. Prigmore

After reviewing both the Initial Project Application and the Placer County Initial Study we found several significant oversights in the documents relating to fire protection issues as listed below.

Initial Project Application

Item 8, This should be "Yes" as the Foresthill Fire Protection District is a governmental agency and their approval of such projects is required.

Item 9, Under "Fire Protection" the Foresthill Fire Protection District would be the lead agency providing protection which includes fire, medical and rescue services. The project is all within its District boundaries. Please disregard the words "Foresthill Volunteer F.D."

It should be further noted that CDF only provides seasonal fire protection services to the area.

Environmental Impact Assessment Questionnaire

Item DPW 37, The CDF station does not operate year around, this should be Foresthill Fire Protection District Station #1 at a distance of approximately 1/4 mile.

Item DPW 39, The project would create significant impact to the Foresthill Fire Protection District. The District could require as much as a 70% increase

in infrastructure, such as a larger/additional fire station(s), additional fire engines, and personnel.

As for the off-site access limitations, This should be "Yes" as the general area geographics reflect steep slopes and grades. The Foresthill Fire Protection District should also be listed here as a governing agency.

Placer County Planning Department Initial Study

Item V, The "Foresthill Fire Protection District" must be added to the list, as the project is all within its sphere of influence.

In conclusion, the Foresthill Fire Protection District has not been recognized and listed appropriately as required, please make the necessary changes as soon as possible.

Sincerely,

Robert McChesney
Fire Chief

Ken E. Hodkin
Vice Chairman
Board of Directors

SIERRA CLUB
FOUNDED 1892

PLACER GROUP
P.O. BOX 7167, AUBURN, CA 95604

January 25, 2002

Lori Lawrence
Environmental Review Clerk
Placer County Planning Department
11414 "B" Avenue
Auburn, CA 95603

RECEIVED
JAN 28 2002
PLANNING DEPT.

Re: **Forest Ranch NOP** (EIAQ-3656)

Dear Ms. Lawrence:

Please include the following comments on the Forest Ranch Notice of Preparation of a Draft Environmental Impact Report, made on behalf of the Sierra Club, in the public record.

General Plan Amendment & Rezone
The document prepared by the county, "Forest Ranch's Probable Environmental Effects," does an excellent job of listing the extensive range of impacts that would likely result from the development of this proposed project. The fact that this project proposes to amend the General Plan and rezone land from timber production to residential and commercial uses, in conflict with the current Foresthill General Plan and all of the Plan alternatives recommended by the Foresthill Community Plan Team, suggests that the proponents hope to gain approval for the maximum dwelling units allowed by current zoning (500+ dwelling units) by later "scaling back" the inappropriate project described in this N.O.P.

Most of the environmental effects described for this huge project would also apply to a smaller project utilizing existing zoning. This site is totally inappropriate for a golf course and 2,213 residential units. A large RV Park or equestrian center are also problematic for this remote area. Instead of trying to rush this project through before the new Community Plan takes effect, proponents should put the project "on hold" until after the new Foresthill Community Plan has been completed and approved.

Impacts from Sprawl
This proposed development is fatally flawed in all respects and represents sprawl at its worst. Forest Ranch is the opposite of sound planning principles advocated by "smart growth." This project would put thousands of families and senior citizens in a remote location with non-existent or inadequate infrastructure to serve them. New and existing residents of the area will suffer impacts to their water quality and supply, air quality, traffic, public services (health care, sheriff, fire protection, schools, roads, energy supply, and wastewater treatment facilities), timber production, recreation, wildlife, cultural resources and aesthetics. The Draft EIR should address fully all of these issues, including specific impacts from the golf course, equestrian facilities, and RV Park, including the likely cumulative impacts of this proposed project.

Biological Impacts
Thorough surveys should be conducted by wildlife biologists, botanists, arborists, and other experts to inform the public which plant and animal species may be put at risk, and how many trees of what size and species will be lost or impacted by the development. Wildlife corridors and critical fawning areas should be identified and protected from disturbance by people and domestic animals. Trails should be placed to minimize potentially hazardous conflicts with wildlife. These conflicts will be a major problem in maintaining a golf course located so inappropriately in a forest habitat setting. The EIR should evaluate how golf course greens could be maintained without the killing of native wildlife that would likely disturb the turf, and how residential landscaping could be planned not to attract wildlife.

Boarding horses in this remote location would also pose problems for wildlife and the environment. The number of horses that will be allowed on site must be disclosed in the EIR. Since horses are very hard on soils, plants and trees, how and where they will be kept/housed should be discussed and impacts mitigated. What animal husbandry techniques would be utilized to minimize conflicts with predators such as cougars and bears? Native wildlife species should not have to be displaced or killed because domestic animals are made easy prey in their territory. The EIR should also evaluate the impact of greatly increased equestrian use of public and private trails and any potential conflicts this use may have on hikers, bikers, and other equestrians, as well as on wildlife.

Water Quality/Supply
Water quality, both surface and ground, is likely to be impaired from golf course runoff and the equestrian facility. The EIR should disclose how on-site and downhill streams and the North Fork American River would be protected from project run-off. Groundwater should not be used for irrigation in such a large golf course/residential project. The Foresthill P.U.D. must ensure that it can provide sufficient water to the project without impairing its supply to existing residents and the build-out of existing zoning in the area.

Sewage
Sewage disposal for such a large project is a major concern. On the Initial Project Application under "sewer" it states, "Current method of sewage disposal would be by on-site septic systems. With ultimate development, project will provide community treatment system." The EIR should address the immediate need for a community treatment system, even for a 500+ home project without the golf course, RV Park or equestrian facility. On-site septic systems for any stage of this project would be inappropriate. Recycling of the project's wastewater for golf course irrigation and other uses should be analyzed in the EIR

Transportation
Statements made by the project proponent on the Initial Project Application with regard to transportation and circulation have dubious validity. Claims that an active retirement community would have only a 10% likelihood of traveling outside of the local community on any given trip may be true for Arizona, but this would not be the case in Foresthill. Unless the developer is planning to provide additional growth–inducing new businesses and services to the existing town, most residents will continue to travel to Auburn and surrounding cities for entertainment, work, shopping, and health services. While senior citizens may not travel much during peak hours, only 11 of the 524 existing zoned units are age restricted, so that the vast majority of the new residents would be traveling during peak hours to work, school, etc. Although the project proposes to have 1,700 of the 2,213 (rezoned) residential units age restricted (55+ years), most 55 year old adults are active and not necessarily retired. This project's golf course and 5 acres of office and professional zoning will not provide enough jobs to local residents to lessen traffic on Auburn Foresthill Road at peak hours or any other time.

The proponent does not address the traffic congestion that would result from the 100-vehicle RV Park or the equestrian center. The golf course and club house/restaurant would also generate trips from both the Foresthill Divide and other parts of the county. The EIR should fully disclose the traffic impacts of this project and evaluate the health and safety risks to current and future residents and visitors, bearing in mind the two-lane bridge that provides the main access to the Foresthill Divide.

Air Quality
This project will contribute to the poor air quality of the area, both in ozone and particulate matter. The EIR should address ways to avoid or mitigate these impacts. For example, wood-burning stoves and fireplaces could be prohibited, and outdoor burning could be restricted or prohibited. Energy-saving, ozone-reducing transit options should be explored, as well.

Alternatives
Proposed project alternatives that comply with the Foresthill Community Plan (currently being updated) should be developed and analyzed. These should include no-golf course, no RV park, and no equestrian center alternatives. Clustered housing with natural open space and public trail amenities on the portion zoned for residential use would be one environmentally superior alternative. Maintaining the majority of the property in sustainable timber production, providing wildlife habitat and natural open space, would meet the goals of the Community Plan and preserve the quality of life for the residents of Placer County. The County is not obligated to provide developers an easy way to maximize profits from their speculative investments.

Thank you for the opportunity to comment on this N.O.P. Please keep the Sierra Club informed on the status of this proposed project.

Sincerely yours,

Sharon P. Cavallo

Sharon P. Cavallo
Conservation Committee
Placer Group Sierra Club

January 21, 2002

6134 Green Ridge Drive
Foresthill, CA 95631

PLACER COUNTY
DATE
RECEIVED

JAN 22 2002

PLANNING DEPARTMENT

Lori Lawrence
Placer County Planning Department
11414 "B" Avenue
Auburn, CA 95603

Re: Forest Ranch (EIAQ-3656)

Please add my name to the distribution list concerning the above project. I also would like to receive a copy of the DIER when it becomes available.

Below are additional issues to be addressed in the DEIR:

Wildlife corridors: The proposed project would increase traffic on Foresthill road thereby increasing the incidents of collision with big game animals.

Public services: The project would impact the existing water supply, especially during drought years.

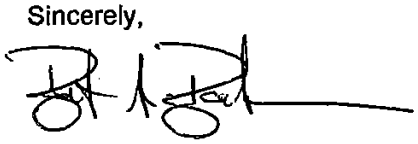
Public services: The project would impact fire-fighting capabilities, emergency, sheriff, and health services on the divide.

Energy and Mineral Resources: The project would contribute to an ongoing energy supply-demand problem in the State of California.

Recreation: The project would impact the use of local trails and increase conflicts amongst trail users (equestrian, hikers, runners, and Mt. bikes). The project would create a burden on staffing needs of the Auburn State Recreation Area, and the Forest Service.

Thank you.

Sincerely,



Brent A. Backus

PLACER COUNTY
DATE
RECEIVED

JAN 2 8 2002

PLANNING DEPARTMENT

January 26, 2002
Mr. Dean Prigmore, Asst. Director of Planning
Placer County Planning Department
11414 "B" Avenue
Auburn, CA 95603

Attn: Ms. Lori Lawrence, Environmental Review Clerk

Re: Forest Ranch (EIAQ-3656)

Dear Ms. Lawrence:

As members of the Blackhawk and Black Oak Ridge Homeowners' Associations living in CSA # 28 we strenuously object to the above captioned project based upon the following essential environmental and safety concerns.

1. **The quality of our drinking water will be compromised.** Each of the undersigned obtains drinking water from wells, fed by aquifers that permeate the entire region. This same region contains several miles of mineshafts, commencing from abandoned mines located on the Project Site (particularly the Mayflower Mine). Maps verify that these shafts exist under many of our parcels. Empirical evidence proves that these shafts are full of water, indicative of seepage from these aquifers. Mining experts indicate the strong likelihood of the existence of mercury and cyanide in these mining areas. [We demand that before any work begins on the Project Site, the Applicant be required to, not just clean up each mine, all shafts and the surrounding environs of all toxic wastes, but also to purchase a bond of a sufficient size to cover all foreseeable costs associated with the cleanup of our water supply.]

The existence of 2,213 septic systems or, in the alternative, one very large wastewater treatment plant will also prove detrimental to the (water) ecology as will the implementation of water run off and drainage systems.

2. **The quality of Brushy Creek and all down stream bodies of water including Shirttail Creek and the north fork of the American River will be jeopardized.** A number of homeowners live adjacent to Brushy Creek, which flows on the north side and below the north boundary of the Project. There are at least four mine shafts, flooded with water, that either empty into or cross this creek. It is feared that the toxic wastes that exist on the Project Site will spill and flow down Brushy to Shirttail to the American River. Pesticides, fertilizers, and herbicides that will be applied to the golf course, landscapes, and Site homes will result in runoff that will leach back into the ground, adversely affecting our water supplies as well as Brushy Creek and all down stream bodies of water.

10. **The herds of deer (and all other wild life) will be displaced.** There already exists a problem of excess wildlife in Todd Valley.

These are the issues with which Blackhawk and Black Oak Ridge homeowners associations are most concerned. We must advise that we will vigorously oppose any zoning change that will allow such heavy concentrations of population, a complete disregard of the dangers that exist in and about the abandoned mines, of the adverse effect on our streams, water quality and water tables, and the creation of noise, dust and light pollution that Forest Ranch represents.

Respectfully submitted,

Ivan & Judy Strayer	7060 Blackhawk Rd
Ed & Pat Fleming	7057 Blackhawk Rd
Dennis & Gail McCafferty	7037 Blackhawk Rd
Janet Leatherman	7017 Blackhawk Rd
Dick & Margie Kloth	7007 Blackhawk Rd
Rod & Linda Ondricek	26200 Black Oak Ridge
Gary & Kathleen Duncan	27000 Black Oak Ridge
Larry & Sue Hicks	27200 Black Oak Ridge
Ron Flodine	28355 Black Oak Ridge
Bob & Terrie Malella	26400 Black Oak Ridge

P.S.: Contact Person

Larry & Sue Hicks
P.O. Box 76
Forest Hill, CA 95631

1/25/02

Placer County Planning Comm.

Re: Foresthill development

Dear Sirs,

My name is Harry Shuger. I have been a resident of Foresthill for fourteen years and have had two businesses there since 1989. During that time I served five years on the Foresthill Chamber of Commerce both as Vice president and later a director. For five years I also served as President of Foresthill Rod & Gun club.

During these fourteen years I have observed many changes take place, mostly positive, in our small community. Even when perceived "negative" changes and community hardships occurred, the community pulled together, rallied back and became stronger. This is the natural ***evolutionary*** process at work in any dynamic entity, and Foresthill **IS** a dynamic entity. I have watched her grow for the last fourteen years. Now a developer wants to change that ***evolutionary*** process with a ***STEROID*** overdose. Foresthill is growing just fine without a Steroid injection.

When I moved to Foresthill in 1988, the population on the Foresthill Divide was believed to be around four thousand. It is now around the six thousand mark, an increase of two thousand (50 %) in fourteen years. That is why it was hard for me to believe a statement I read in the Auburn Journal. The statement was attributed to the Placer County planning commission. You had reached the conclusion that doubling the population in Foresthill with this ONE proposed development "*would have no negative impact on Foresthill*". Do you believe that, or does the county just see the $$ in developer fees and property taxes. These $$ will come at the expense of the quality of life, the environment, and the natural evolutionary development that the residents of this community currently enjoy.

I urge you to think seriously about this before tendering your vote. Thank You

Sincerely:

Harry Shuger
P.O. Box 1067
Foresthill Ca. 95631

Cc: all Comms.

28320 Secret Town Ct.
Colfax, CA 95713
January 17, 2001

PLACER COUNTY
DATE
RECEIVED
JAN 25 2002
PLANNING DEPARTMENT

Fred Yeager, Placer County Planning Director
11414 B Avenue
Auburn, CA 95603

Dear Mr. Yeager:

I saw the article in the Auburn Journal concerning the development in Foresthill. It is rather huge but phased in over a period of time so the community is not doubled overnight might make it a valuable piece. With the new high school being built, additional development is not only expected, it would be advantageous.

It, however, must be integrated housing so that the various levels of housing need are addressed. Low income, first time home buyers, upward mobile or downsizing families, and those who want their dream house in the woods and can pay a good deal for it. People who demand services and those who provide them should be able to live in the same general community.

One area of concern I'd have is health care. Kaiser Permanente is a major player in the health care field in Placer County but they only can serve part of the County due to the Balance Budget Act of 1997 mandating people be within 30 miles of the medical group they use. After I moved to the Colfax area, I had to change medical coverage. Presently the line is at Weimar. Foresthill is over 30 miles from Roseville so is not covered by Kaiser. Their zip code is not on the list. I know people there who have received a letter I did informing them they have to change because of the law.

I petitioned Kaiser to put a clinic in Auburn which would open up much more of the county to coverage. There is even that empty medical building at the corner of Bell and Heritage Oaks that I alerted them to. I also alerted the realtor to the possibility. It seems to me that if there are further large developments in the Foresthill or Colfax area, Placer County should make a concerted effort to get Kaiser to put a clinic in Auburn. That would open up the area as far as Alta and possibly some beyond that. So many from this area go to Roseville, it might well take some of the pressure off that facility.

Thank you for your good work. I was there to rejoice when the Planning Commission so decisively approved the Silver Bend Project. I'm trusting the Board of Supervisors will do the same.

Sincerely,

Beverly Anderson

Beverly Anderson

FORESTHILL UNION SCHOOL DISTRICT

Jim Roberts, Superintendent
24750 Main Street
Foresthill, CA 95631
(530) 367-2966 • (530) 367-2470 fax • jroberts@fusd.org

PLACER COUNTY
DATE
RECEIVED
FEB 06 2002
PLANNING DEPARTMENT

January 25, 2002

Lori Lawrence
Placer County Planning Department
11414 "B" Avenue
Auburn, CA 95603

Dear Ms. Lawrence:

As requested, I am responding to your "Notice of Preparation of a Draft Environmental Impact Report" for the Forest Ranch (EIAQ-3656). On behalf of the Foresthill Union School District, I am providing our views on the probable environmental effects of the proposed project.

The project as proposed has the potential to have significant adverse impacts on traffic in and around Foresthill Elementary School and Foresthill Divide Middle School. The additional traffic added by the project could increase the length of bus routes. Bus routes will necessarily be longer requiring additional driver time at a cost to the District. Additional traffic in and around the schools increases safety concerns. Students who live within a mile of the schools walk to attend class. Without careful planning these walkers could be put in harms way because there are an increased number of motorists on the roads.

It is difficult to from the Proposed Zoning Plan where the entrances, exits and roads will be within the proposed development but additional concerns about "red light bus stops" is another issue for the District. "Red light stops" are required whenever a student(s) exits the bus and has to cross the street to get home. Without knowing the plan for roads, entrances and exits to the proposed project, it is difficult to ascertain the number of "red light stops." This type of stop is of concern to the District both for financial and safety considerations.

Jim Roberts, Principal
Foresthill Elementary School
24750 Main Street
(530) 367-2211
(530) 367-2470 fax
jroberts@fusd.org

Board of Trustees
Anne Davis
Richard Beress
Nancy Lambuth
Francine Nunes
Mark Sussman

Matt Miller, Principal
Foresthill Divide Middle School
22888 Foresthill Road
(530) 367-3782
(530) 367-4526 fax
mmiller@fusd.org

The project as proposed has the potential to impact the District by both the number of new students produced by a project this size and by the growth of the student population. Currently the District's facilities are impacted and near capacity. With additional growth there is the potential need for a new elementary school. To finance a new school would require the passage of a bond. It is doubtful that the tax base of the Foresthill community could provide adequate funding to build a new school.

Date: 2/6/02

Signature: Jim Roberts

Title: Superintendent

Dear Ms. Daniels,

I am writing in concern about Dr. Ryan's proposal of building a retirement community in Forestthill. I will be directly affected by this. I do not object to new homes being built by me but I do object to a poorly planned proposal. We are a forest community with houses well spaced apart to maintain the integrity of the forest. What Dr. Ryan proposes is too impacted for our community. I am primarily concerned with the noise level and the polluting of wells. Golf courses are major pollutants. Will there be money from the county to put in city plumbing if my well is polluted? I certainly don't have the money to do so. My concern is one of a myriad of concerns

Andrew D. Funk
Consulting Forester

Dave Funk
PMB 6442. 10556 Combie Road. Auburn, CA 95602
Phone:530. 274-7809 Fax: 530. 274-7809 Mobile: 530. 908-7809
funkforestry@jps.net

PLACER COUNTY
DATE
RECEIVED

MAR 11 2002

PLANNING DEPARTMENT

March 8, 2002

Ms. Lori Lawrence
Placer County Planning Department
11414 B Avenue
Auburn, CA 95603

Reference: Forest Ranch NOP (EIQA)-3656.

Dear Ms. Lawrence;

Mr. Donald Ryan requested that I respond to statements made by CDF in their letter dated January 17, 2002. He asked me to respond on his behalf because of my familiarity with past and current activities on this property. I prepared the documents that withdrew the former NTMP's as well as the currently active Timber Harvest Plan 97-070. During these processes, I had the opportunity meet or speak with numerous individuals from various professions about the property. These included many foresters, neighbors, state and federal biologists, hydrologists, engineers and an archaeologist. I inspected and reviewed the archaeological sites and records for this property. I constructed the Archaeological Addendum to Timber Harvesting Plan 97-070. This addendum is the current document referenced by CDF. The addendum includes the previously recorded cultural information and newly recorded cultural information from my survey of the property in 1997.

Response to the following items contained in the CDF Letter:

CDF Impact Number 1: The subject property contains a variety of cultural resources. I reviewed the Conceptual Development Plan Map. The sites that could be impacted are miner's ditches that were used to convey water and diggings areas. Both of these features are not unique as they are well represented throughout the Foresthill Divide and the Central Sierra Regions. Review by a professional archaeologist will easily mitigate impacts associated with miner's ditches and diggings areas.

CDF Impact Number 2: The Foresthill Divide contains tens of thousands of acres of forested land. This timberland is currently managed for forest resources that include timber production, wildlife, fisheries, recreation and aesthetics. The largest owner is the USDA Forest Service. Other large owners include Sierra Pacific Industries and Fruit Growers. It was suggested that the Ryan, et. al. property could produce 1% of Sierra Pacific's annual Lincoln wood fiber production. Sierra Pacific Industries owns more than one million acres of California timberland. The entire subject property represents just thousandths of one a percent when compared to the holdings of just this one company. Sierra Pacific Industries saw mill in Lincoln is a destination mill. The facility does not derive its material entirely from Placer County but rather from the entire Central Sierra Region. The facilities close proximity to the Stockton and Sacramento ports makes the location of the Lincoln mill desirable to import sawlogs from foreign sources.

The timber industry has declined even though the subject property has been producing sawlogs for many years. Notwithstanding the obvious risk to catastrophic loss due to wildland fire, thirty years ago a timber producer could go to the market with his produce and find many buyers. Today, the timber producer goes to the market and finds the price set by only one buyer. Will that one buyer still be there in another thirty years, the earliest under the best conditions in which another substantial harvest could be contemplated? We all hope so but if the present trend is any indication of the future, then there will likely not be a market in thirty years. Already some timber producers are moving operations out of California and the United States due to uncertainty about the future direction of local, state and federal regulations.

CDF Impact Number 3: The subject property north of the Foresthill Divide Road contains the typical vegetation found in the Sierra Mixed Conifer Forest Type. The subject property does not contain pasture lands, blue oak woodlands or wetlands. The property does contain riparian areas that are typical of the forest type. While pure conifer and hardwood stands exist, the vast majority of the area contains a mixture of both conifer and hardwood. The most recent harvest substantially removed the overstory that was suppressing the release of the young developing conifers. The thinning was directed at achieving a more balanced composition. The NTMP began the process of reducing the excessive amount of incense cedar in the intermediate canopy layers that was retained from previous harvest entries. The THP continued the thinning to balance the species composition.

CDF Impact Number 4: The topography contained on the subject property north of Foresthill Divide road is mostly gentle with some moderately sloped terrain. It is generally accepted that this area contains good forest soils. The majority of the soils are very deep and nutrient rich. These soils are capable of producing high quality sawlog and wood fiber forest products. The only exceptions to this are those areas where placer mining removed the surface soil. Slope stability problems are associated with the scarps at the diggings areas. These areas are becoming more stable with the advance of vegetation.

CDF Impact Number 5: CDF and US Forest Service stations are within just minutes of the subject property. CDF staffs an air tanker base in Grass Valley, California that is only a few minutes air time from the property. The owners have cooperated with CDF to reduce fuels along the major roads. The proposed project will result in interrupting the continuity of vegetation and thus increase the likelihood of successful fire suppression.

THP 97-070: The Timber Harvesting Plan will expire on July 2, 2002. The helicopter portion of the THP has not been harvested due to poor market conditions. No further harvesting is planned.

Estimates of current and potential wood growth: The timberland owners contracted in 1993 to have two documents written that would satisfy the requirements of a Non-industrial Timber Management Plan (NTMP). The documents, NTMP 2-93-03 and 2-94-03 were executed until withdrawn by the timberland owners in 1997. Following the acceptance of withdrawal by CDF in 1997, a new Timber Harvesting Plan, 97-070, was prepared. Timber Harvesting Plan 97-070 will expire on July 2, 2002.

The NTMP's made two growth projections that were based on two different methods of estimating future growth. CATOS [California Conifer Output Simulator] and a growth prediction from the yield tables contained in the document titled, "Preliminary Yield Tables for Second Growth Stands in the California Pine Region", Technical Bulletin Number 354. This document was published in June of 1933. CACTOS was developed by the Northern California Forest Yield Cooperative, Meerchaert and Wensel, et al, in the mid to late 1980's.

CDF has concluded from reading the NTMP's that 600 to 800 board feet per year per acre is the sawlog productivity for over 2,000 acres of the subject property. The following considerations should be made in evaluating this claim:

..... How many acres will be contained in the open space areas?

..... The CACTOS projection included an estimate of current growth with one five-year growth projection. It is not clear as to whether hardwood board foot volume was included in the growth projection.

..... Bulletin Number 354 was referenced as providing an estimate that the subject property was capable of producing between 600 and 800 board per acre per year. While the CACTOS projections were supported by a substantial amount of supporting documentation, the Bulletin 354 projection was not.

..... The Yield tables in Bulletin 354 are derived from a sample of selected plots in cut-over land with varied forest structure and composition in the 1920's and 1930's. From this sample, forest structure and composition estimates of future volume are made given a rating of the quality of the growing site. This is typically called a site index. Or, range of site indexes called site I, II, III etc.

..... The yield tables are heavily weighted on the assumption of the density and composition of average conifer stands which consists of ponderosa and sugar pine, Douglas-fir and white fir. Incense cedar is treated in the yield table construction as a minor species with compositions of 10 percent and less. The area of the NTMP identified for 600 to 800 board feet of growth per acre per year contains hardwoods and incense cedar both reported in excess of 30 percent. The influence that hardwoods have on the growth rates of conifers was not discussed in Bulletin 394; hence, the growth projections used may not apply.

..... To measure the productivity of a given property after conversion from a mixed forest of conifer and hardwood to entirely conifer is not a measure of a practical constrained management policy where a variety of related values are given importance. While making this type of assumption produces some great productivity numbers, the reality of constrained optimization is a reduction in conifer timber production in-lieu of enhancing other values such as wildlife habitat and recreation.

In closing, it is generally accepted that the entire Foresthill Divide contains good forest soils. These soils are capable of producing a series of periodic harvests. The current forest structure and composition is not the same forest structure and composition that existed at the time of the preparation of the NTMP's or THP 97-070. Drawing future volume conclusions from Bulletin 394 yield tables is interesting; however, it is not recommended because of the unknown competitive influence on future growth from hardwoods that are a significant part of the past and present stands. Changing the forest mix is speculative at best and improbable given the constraints imposed by other considerations such as wildlife habitat and recreation. Even if such a conversion were to occur, it is questionable if there would be any local mills which could accept sawlogs in 30 years time.

Should you have any question, please feel contact me at any time.

Respectfully,

Andrew D. Funk

Andrew D. Funk
Professional Forester
Calif. Reg. Number 2260
Exp. 7/1/02

.cc: Barbara Ryan
Donald Ryan
Douglas Ryan
Michael Ryan
CDF, Gary Brittner
file

Appendix B

Prepared for:

Quad Knopf
One Sierragate Plaza, Suite 270C
Roseville, CA 95678

Forest Ranch

WASTEWATER FEASIBILITY ANALYSIS

January 14, 2004



Prepared by:

Sauers Engineering, Inc.
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Nevada City, CA 95959
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1. Introduction

The purpose of this report is to provide a preliminary analysis of the feasibility of a wastewater collection, treatment and disposal system for the proposed Forest Ranch project in Placer County, CA. This analysis is made as part of the Environmental Impact Report (EIR) for the proposed General Plan Amendment from "Forestry" to various residential, commercial & open space uses; and the proposed Rezoning Amendment, (REA) from "Timberland Production" [TPZ] to various residential, commercial & open space zones. No subdivision application, conditional use permit application or draft development agreement has been submitted at this point.

This project site consists of approximately 2600 acres to the northeast of the unincorporated community of Foresthill, California. The site is located on the Foresthill Divide, a northeast-trending ridge system separating the North and Middle Forks of the American River.

The report contains a conceptual analysis of the feasibility of a community wastewater collection, treatment and disposal system. This is not intended to be a predesign study for purposes of establishing the best or most economical treatment process although several alternatives were considered as part of the report preparation.

2. Description of Project

The proposed project would consist of a planned community consisting of primarily residential and recreational uses. Table 1 summarizes the proposed land use designations with the number of units anticipated within each land use. Land use designations that are anticipated to be sewered are indicated as such and contribute to the total number of equivalent dwelling units ('s) to be served by the community sewer system.

Table 1 Proposed Land Use Designations & Equivalent Dwelling Units (EDU's)				
Land Use Designation	Acreage	# Units	Sewer Service	Connected EDU's
RR-5 Rural Residential	189	37	Septic	0
RR-2.3 Rural Residential	71	29	Septic	0
RR-1 Rural Residential	309	271	Community	271
LD-2 Low Density Residential	190	334	Community	334
LD-3 Low Density Residential	291	698	Community	698
MD-4 Medium Density Residential	140	448	Community	448
MD-6 Medium Density Attached Residential	83	396	Community	396
RES Resort (14 acres)	14		Septic	0
GC General Commercial†	5		Community	10
OS- Greenbelt and Open Space	1323			0
Totals	2615	na		2157

† Based upon 19,000 sq. ft. professional office space indicated in administrative draft EIR.

3. Design Flows

Pipelines

Design flows for the sizing of the collection system are anticipated to be consistent with the requirements defined in Section 6 of the Placer County Land Development Manual. Typical requirements for sizing of pipelines would include 400 gpd/EDU plus a peaking factor that varies with the number of units served by the pipeline in consideration. The value of 400 gpd/EDU is meant to accommodate a reasonable amount of infiltration and inflow and the peaking factor accounts for diurnal fluctuations in flow.

Treatment Plant

Placer County standards require a value of 250 gpd/EDU to be used for estimating the average dry-weather flow (ADWF) at the treatment plant. With an anticipated 2157 EDU's to be served within the project, estimated buildout ADWF would be 540,000 gpd.

Average wet-weather flow (AWWF) at a treatment plant will often be higher than ADWF by a factor of 2-3 or even higher in older systems. For preliminary design purposes, a value of 400 gpd/EDU was used for AWWF resulting in a total anticipated flow of 860,000 gpd at the treatment plant during winter months.

Table 2
Anticipated Flows
Forest Ranch Wastewater Treatment Plant

Buildout EDU	ADWF	AWWF
2157	540,000	860,000

4. Collection System

The conceptual design for the Forest Ranch wastewater collection system is based on a conventional gravity-flow collection system with sewer lift stations and a single treatment facility.

Due to the preliminary nature of this study, a detailed layout of the sewer system is not possible since road alignments and property lines are unknown. However, a conceptual layout of the gravity trunk lines has been generated for purposes of predicting the number of sewer lift stations that might be necessary. The conceptual layout is based primarily on topographic limitations and is shown graphically in Figure 1. The estimated cost per EDU for the collection system will not be available at this point since costs can vary significantly depending upon how the parcels are laid out. Budgetary costs have been included for the sewer lift stations later in this report.

As indicated in Figure 1, it is anticipated that at least two sewer lift stations will be required to serve the project. Depending upon the layout of the streets and the homes, it is possible that more would be required. Figure 1 provides an estimate of the number of EDU's and the capacity of the two lift stations proposed.

Typical sewer lift stations would consist of a wet well and two submersible pumps. Most agencies require auxiliary storage or a generator to be at the site. Some agencies require both. Cost estimates for the lift stations anticipate a package type lift station with auxiliary storage and a trailer mounted generator that could be shared at multiple sites.

5. Treatment Design Criteria

Influent Design Criteria

For purposes of the preliminary sizing of the treatment facilities the following influent water quality parameters were used:

BOD_5	240 mg/l	1,000 lb/day
Suspended Solids	240 mg/l	1,000 lb/day
TKN	45 mg/l	188 lb/day

Central Valley Regional Water Quality Control Board staff has provided some general guidelines of what to expect in the form of waste discharge requirements. Perhaps the best

Legend

- Gravity Sewer Line (~59,500 L.F.)
- Sewer Force Main (~2000 L.F.)
- Lift Station
- Waste Water Treatment Facility

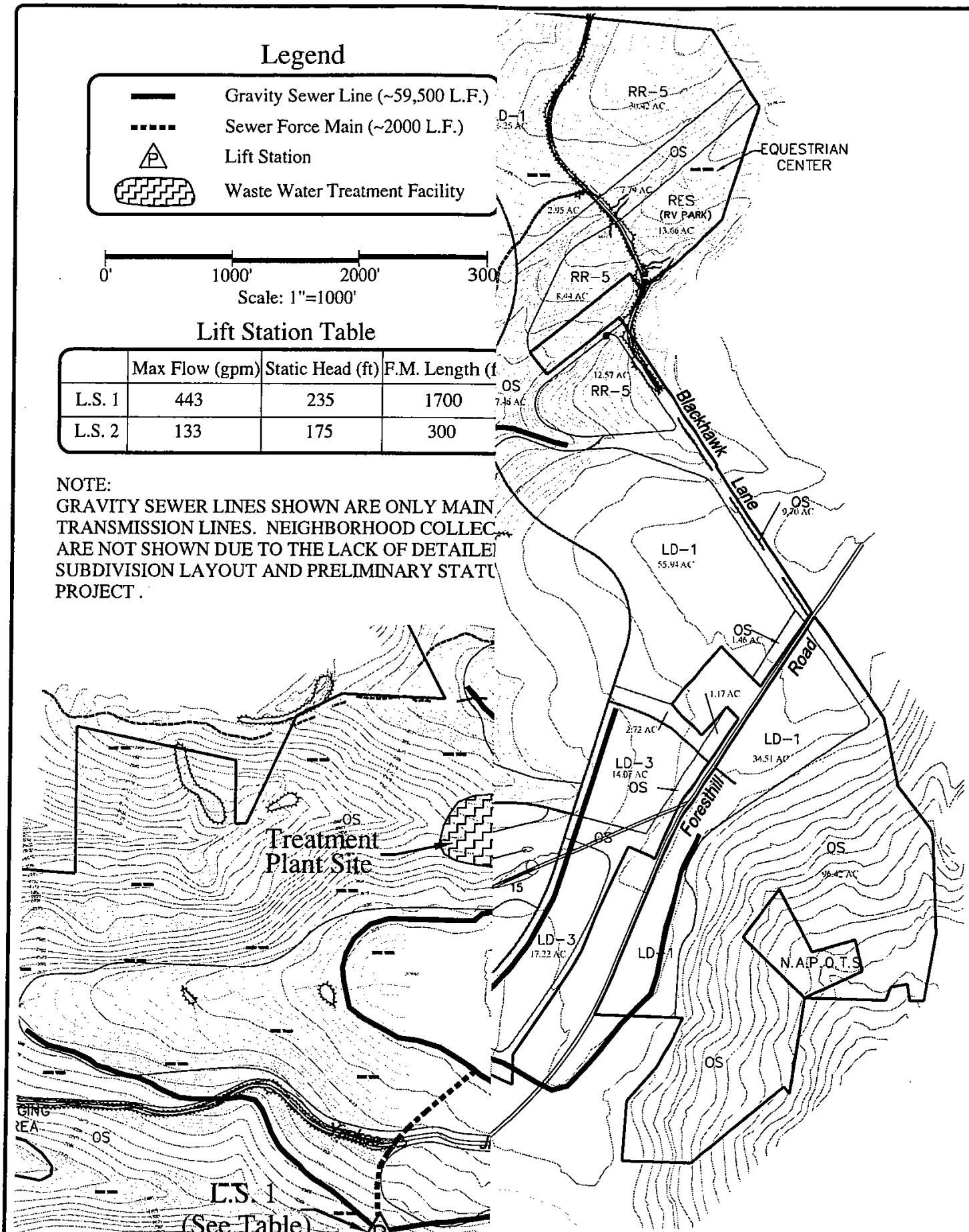
0' 1000' 2000' 300

Scale: 1"=1000'

Lift Station Table

	Max Flow (gpm)	Static Head (ft)	F.M. Length (f
L.S. 1	443	235	1700
L.S. 2	133	175	300

NOTE:
GRAVITY SEWER LINES SHOWN ARE ONLY MAIN
TRANSMISSION LINES. NEIGHBORHOOD COLLEC
ARE NOT SHOWN DUE TO THE LACK OF DETAILE
SUBDIVISION LAYOUT AND PRELIMINARY STATU
PROJECT .



Forest Ranch

Preliminary Sewer Trunk Lines

Figure 1

indicator of what to expect is found through the analysis of existing WDR's for similar types of facilities. The assumptions indicated in this section are based upon consultation with Regional Board staff and knowledge of existing waste discharge requirements for similar systems, and requirements of the Department of Health Services as outlined in Title 22.

It is anticipated that the method of wastewater disposal will be golf course irrigation and subsurface drip irrigation. A review of existing WDR's for systems that reclaim wastewater for purposes of golf course irrigation show that effluent limitations are often in the range of 30 mg/l BOD_5, 30 mg/l Suspended solids, and often have no defined limit on nitrogen.

For purposes of preliminary design, the following values have been used for planning purposes.

Effluent Design Criteria

BOD_5	10 mg/l
Suspended Solids	10 mg/l
Total Nitrogen	10 mg/l
Total Coliform	< 2.2 per 100 ml 7 day average. (per Title 22)
	< 23 per 100 ml, in any sample. (Per Title 22)

California Toxics Rule
The EPA recently promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards for waters in the State of California pursuant to section 303(c)(2)(B) of the CWA if those pollutants could be reasonably expected to interfere with the designated uses of state's waters. Although California had adopted numeric criteria for priority toxic pollutants in 1992, the courts ordered California to rescind these water quality control plans in 1994 and the new water quality criteria rule, known as the California Toxics Rule (CTR), temporarily replaced the standards adopted in 1991. The CTR established:

- Ambient aquatic life criteria for 23 priority toxics;
- Ambient human health criteria for 57 priority toxics; and
- Compliance schedule provision.

Under the CTR various Regional Water Quality Control Boards will issue schedules of compliance for new or revised NPDES permit limits based on the federal criteria when certain conditions are met. Currently each basin plan, as prepared by the Regional Water Quality Control Board, contains a water quality criterion that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This has been contested by local jurisdictions all over California since it is expected to add significantly to the cost of wastewater treatment.

Since no stream discharges are anticipated in the case of the Forest Ranch treatment plant, it is unclear exactly what effect the California Toxics Rule will have on the requirements of the NPDES permit. Recent NPDES updates for land disposal systems seem to be focusing on *monitoring* of groundwater so as to make a determination whether the disposal of treated effluent

is having a detrimental effect on groundwater in the area. The groundwater monitoring is being implemented through the installation of new monitoring wells. It is anticipated that monitoring wells will be installed in various locations around the storage ponds and around the disposal areas. Wells will be located upgradient of the discharge for purposes of establishing background levels and comparing the test results of the downgradient wells.

One of the primary focuses of the monitoring wells is that of monitoring nitrogen levels. Nitrogen contamination seems to be one of the most significant problems with groundwater contamination due to human activity and is of concern with wastewater disposal.

Factors that will minimize the potential for contamination of ground water supplies for this project include the high quality soils in the area, nitrogen uptake by grasses on the golf course, the depth to groundwater, and the nitrogen reduction that will take place in the treatment plant.

Title 22

Requirements for wastewater reuse are established in Title 22 Chapter 3. Section 60313b Landscape Irrigation states that reclaimed water used for the irrigation of parks, playgrounds schoolyards, and other areas where the public has similar access or exposure shall be at all times an adequately disinfected, oxidized, coagulated, clarified, filtered wastewater or a wastewater treated by a sequence of unit process that will assure an equivalent degree of treatment and reliability. The wastewater shall be considered adequately disinfected if the median number of coliform organisms in the effluent does not exceed 2.2 per 100 ml, as determined from the bacteriological results of the last 7 days for which analyses have been completed, and the number of coliform organisms does not exceed 23 per 100 ml, in any sample.

Title 22 also outlines requirements for reliability of the treatment facility. Such requirements include redundancy of treatment trains, storage and alarms.

General Limitations

It is anticipated that the Waste Discharge Requirements for the proposed reclamation facility will provide reclamation specifications and groundwater limitations designed to protect groundwater and surface waters and to protect public health and safety. Irrigation would likely be required to take place during hours when golfers are not present. A few general provisions that would likely be part of the WDR's would include the following:

a. The discharge shall not cause the degradation of groundwater or any water supply.
b. Discharge of recycled water to surface waters or surface water drainage courses will be prohibited.
c. The discharge shall remain in the designated reclamation area at all times.
d. Use of reclaimed water shall be limited to golf course irrigation and disposal through subsurface drip irrigation systems.
e. Reclaimed water use shall meet the criteria contained in Title 22, Division 4, CCR (Section 60301 et. seq.).

f. Public contact with the reclaimed water shall be precluded through such means as fences, signs, and other acceptable alternatives. Reclaimed water for irrigation shall be managed to minimize erosion, runoff, and movement of aerosols from the disposal area.
g. Direct or windblown spray shall be confined to the designated disposal area and prevented from contacting drinking water facilities.
h. Areas irrigated with reclaimed water shall be managed to prevent breeding of mosquitoes.
i. All applied reclaimed water and any additional supplement irrigation water must infiltrate completely within a 48-hour period.
j. Storm water runoff from the spray irrigation field shall not be discharged to any surface water drainage course within *some specified number* of days of the last application of reclaimed water.
k. There shall be no irrigation or impoundment of reclaimed water within 150 feet of any domestic water well.
l. All reclaimed water equipment, pumps, piping, valves, and outlets shall be appropriately marked to differentiate them from potable facilities, and these shall be of a type, or secured in a manner, that permits operation by authorized personnel only.
m. Supplementing reclaimed water by connection with a domestic drinking water source or irrigation or industrial wells requires an air gap separation device.

6. Proposed Treatment Process

Several treatment technologies were considered for the proposed wastewater treatment plant, each of which would be capable of meeting the water quality objectives. A more detailed analysis of each of the technologies may be appropriate prior to the final design stage so as to better determine the most appropriate technology for the site. Technologies that were considered as part of this analysis include:

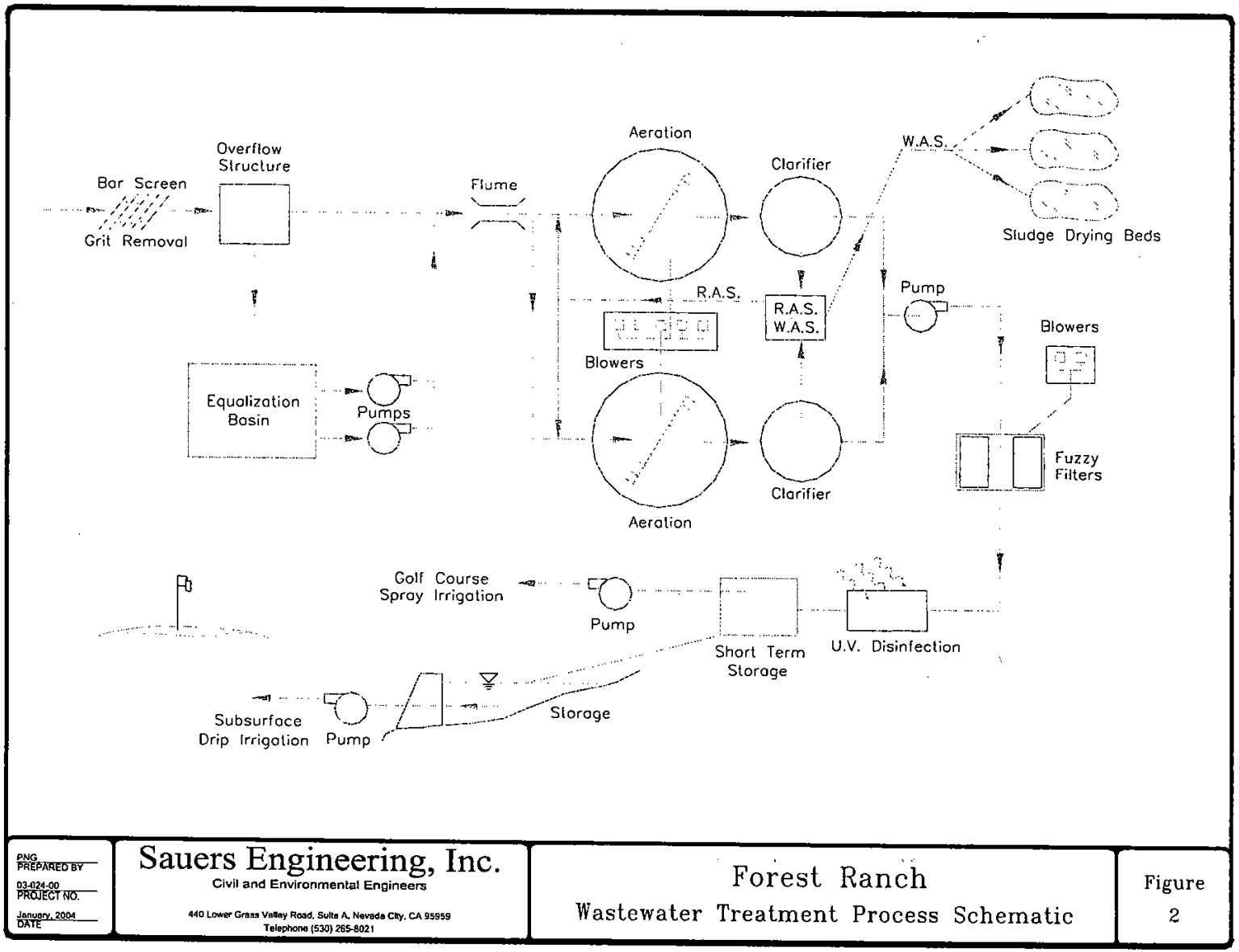
a. Membrane bioreactors (MBR).
b. Sequencing batch reactors (SBR) with Fuzzy Filters.
c. Biolac packaged treatment system with continuous backwash filtration.
d. Schreiber CounteFr Current Aeration, secondary clarification, and Fuzzy Filters.

Process Description

Of the four processes initially considered, the Schreiber *Counter Current Aeration* system appeared to meet the design objectives for this system through a somewhat traditional approach at a reasonable cost. Cost estimates and the process description described herein are based upon the packaged treatment system with the counter current aeration, secondary clarification and the fuzzy filters. Figure 2 illustrates a simplified process flow diagram for the treatment process.

Preliminary Treatment

Wastewater flows by gravity into the plant through the headworks which provides the preliminary treatment consisting of a self cleaning screen and grit removal. Following the headworks, a diversion structure is included to allow diversion of a portion of the incoming flow to an equalization basin. The equalization provides a place for the wastewater to go during periods of the day when the flow exceeds the average flow through the plant. Pumps will be available to


Overflow Structure
Bar Screen
Grit Removal
Flume
Aeration
Clarifier
W.A.S.
Sludge Drying Beds
R.A.S.
R.A.S.
W.A.S.
Pump
Blowers
Blowers
Equalization Basin
Pumps
Fuzzy Filters
Clarifier
Aeration
Golf Course Spray Irrigation
Pump
Short Term Storage
U.V. Disinfection
Storage
Subsurface Drip Irrigation
Pump
PNG
PREPARED BY
03-024-00
PROJECT NO.
January, 2004
DATE
Sauers Engineering, Inc.
Civil and Environmental Engineers
440 Lower Grass Valley Road, Suite A, Nevada City, CA 95959
Telephone (530) 265-8021
Forest Ranch
Wastewater Treatment Process Schematic
Figure
2

pump the wastewater out of the equalization basin during periods of lower flow. It is anticipated that the equalization basin would include aerators to maintain suspension of solids and to prevent the contents from going septic. The equalization basin also provides a short term storage option that helps to meet Title 22 requirements for reclaimed wastewater.

Secondary Treatment

Secondary treatment basins include a Counter Current® aeration process in a concentric ring around the clarifier. The outside diameter of the vessels is approximated at 65 ft. Two 65 ft diameter aeration basins would be included, both with a clarification basin at the center of the basin for optimal space utilization. (See Figure 3) Within the aeration basin, helical scraper assemblies are suspended from a beam arm that rotates from the center of the basin. Flexible membrane diffusers are suspended within the aeration ring inches above the basin floor from a peripherally driven rotating aeration bridge. The separation of the aeration and mixing processes allows for exceptional turn-down capability which will be necessary during the initial phases of the project. During low load conditions, the blowers can be turned down while maintaining complete mixing of the reactor mass.

With Counter Current Aeration, the air to the diffusers may be turned off as the aeration bridge continues to mix the contents of the basin. A continuous sequence of oxic, anoxic, and anaerobic phases can be achieved as a result of the ability to turn air on and off to the diffusers while the aeration bridge maintains the organics in suspension. It is by this concept that the unit becomes a sequencing reactor for biological nutrient (nitrogen and phosphorous) removal.

Following the aeration basins, water flows into the 32 ft diameter clarifier at the center of each basin. The clarifiers provide secondary sedimentation and scum removal. Sludge from the clarifiers gets returned to the aeration basin inlet via the return activated sludge (RAS) pumps or discharged to sludge drying beds as waste activated sludge (WAS).

Tertiary Treatment

Clarified water continues to the filters for tertiary treatment. The proposed filters consist of two Schreiber Fuzzy Filters with filtration rates between 10 and 20 gal/min-ft^2. The Fuzzy Filters are a proprietary design consisting of synthetic fiber spheres. Unusual features of the filter are: (1) the porosity of the filter bed can be modified by compressing the filter medium and (2) the size of the filter bed is increased mechanically to backwash the filter. The filter medium also represents a departure from conventional filter media in that the fluid to be filtered flows through the medium as apposed to flowing around the filtering medium, as in sand and anthracite filters. As a result of the high porosity, filtration rates of 10 to 30 gal/min-ft^2 have been pilot tested.

In filtering mode, secondary effluent is introduced in the bottom of the filter. The influent wastewater flows upward through the filter medium, retained by two porous plates, and is discharged from the top of the filter. To backwash the filter, the upper porous plate is raised mechanically. While flow to the filter continues, air is introduced sequentially from the left and right sides of the filter below the lower porous plate, causing the filter medium to move in a rolling motion. The filter medium is cleaned by the shearing forces as the wastewater moves past the filter and by abrasion as the filter medium rubs against itself. Wastewater containing the

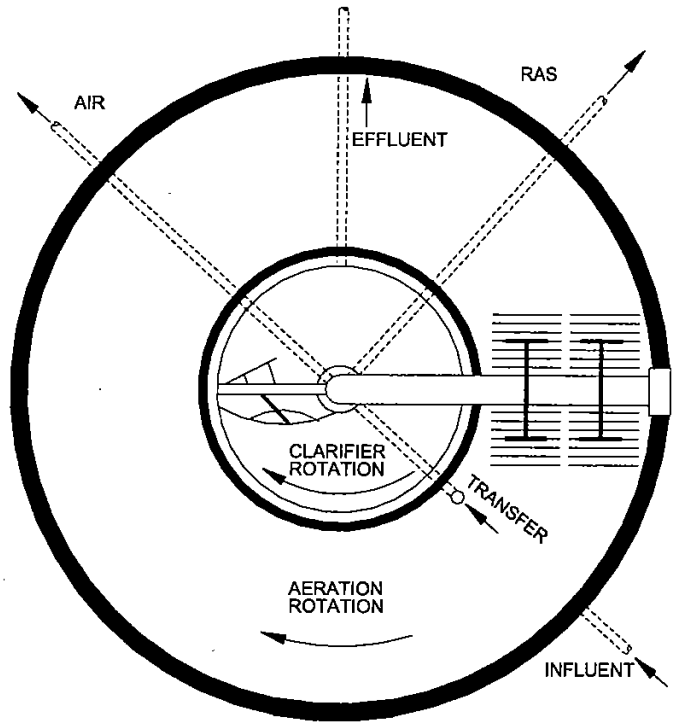


Figure 3, Configuration of clarifier inside of aeration basin.

solids removed from the filter is diverted for subsequent processing. To put the filter back into operation after the backwash cycle has been completed, the raised porous plate is returned to its original position. After a short flushing cycle, the filtered effluent valve is opened, and filtered effluent is discharged.

Following filtration, the water will be disinfected. Disinfection will most likely be through the use of sodium hypochlorite (chlorine) or ultraviolet (UV) radiation. Each of these technologies has certain advantages and disadvantages which should be evaluated prior to final design. The preliminary design assumes that UV will be used for disinfection of the treated effluent. Thus, a higher equipment cost exists, but the need for a chlorine contact basin and other chlorine handling facilities is eliminated.

7. Disposal Options

Wastewater disposal is one of the most significant challenges associated with the wastewater at the project site due to the desire to not discharge to any surface water body. It is the intent of the applicant to utilize reclaimed wastewater for purposes of irrigation on the golf course. This concept is consistent with planning policies by Placer County and the Regional Water Quality Control Board. The Basin Plan for the Regional Water Quality Control Board strongly encourages reclamation of treated wastewater. For planning purposes, it is assumed that the golf course will use at least 400,000 gpd during the summer months. This would be for purposes of irrigating the greens and the fairways only and is considered somewhat conservative.

Since the golf course will only use reclaimed water during the summer, a significant challenge associated with the concept of wastewater reclamation is that of handling the water during winter months. The golf course demand is the lowest when flows from the treatment plant will be at their highest. Either the treated water must be stored in a reservoir until it is used or an alternative disposal method must be available. Since buildout flows are anticipated to be more than the golf course can use, an alternative disposal method is required.

The options available for on-site disposal include leach field systems or subsurface drip irrigation. A comparison of the two alternatives has shown that subsurface drip irrigation would be a more efficient and cost effective method of disposal.

Subsurface Drip Irrigation (SDI)

The "rough" areas of the golf course are a potential area that could be used for subsurface disposal of treated effluent. A preliminary layout indicates that the golf course will cover over 200 acres of total area. Since the groomed areas (tees, greens, fairways, driving range, etc.) will comprise less than 70 acres of the total, there should be at least 100 acres available for disposal of treated effluent in and around the golf course and near the treatment plant.

Subsurface drip irrigation can provide an efficient method for disposal of treated effluent. A subsurface drip system disperses effluent below the ground surface through small diameter pressurized pipes and emitters. Small, precise amounts of water are uniformly applied under the soil surface from multiple points. The drip system is designed using the grid concept with supply and flush manifolds at each end creating a closed loop system. The grid design provides a complete subsurface wetted area. Some advantages of subsurface drip irrigation include:

- Minimizes health risks associated with exposure to reclaimed water.
- Minimizes liability exposure associated with overspray and aerosol drift from conventional sprinkler systems near residential properties.
- More acceptable psychologically and politically.
- Eliminates ponding and runoff problems.
- Unrestricted irrigation scheduling.
- Low pressure requirements.
- Minimizes potential for vandalism.
- Favorable cost/benefit compared to other disposal methods.

All treated effluent that is not used for golf course irrigation would be applied to the subsurface drip irrigation fields.

Drip Irrigation/Storage Water Balance
An evaluation was made to determine the feasibility of disposing of all treated effluent on-site. A water balance was calculated for the site utilizing the following information:

- Estimated ADWF and AWWF for the project
- Average rainfall for the area. (Forest Hill Ranger Station)
- Evapotranspiration (ETo) from CIMIS "Reference Evapotranspiration"
- Estimated soil absorption rate as determined by percolation tests.

The results of the disposal evaluation provide an estimate of the required storage volume and the required disposal area. The analysis looks at various combinations of disposal field sizes and reservoir storage requirements so as to determine the optimum combination. Essentially, if more area is used for disposal in the form of subsurface drip irrigation, less storage is required to get through the winter. An analysis of costs suggests that it is more economical initially to install more drip irrigation and smaller storage facilities. Large reservoirs can be expensive and difficult to construct in mountainous terrain. From a reliability standpoint, a reservoir of at least 10 mgd should be available to allow for down periods in the disposal field due to failures of pipes, pumps, controls etc. A portion of this storage could be incorporated into water features throughout the golf course although the water features would need to be emptied prior to each winter season.

Table A1 in the Appendix contains the spreadsheet based water balance that was used for estimating the required disposal field size and the storage requirements. The maximum monthly average hydraulic loading rate anticipated for the drip system is based upon preliminary soils testing and on recommendations from the Geoflow Design and Installation Manual.

Soils Testing
Soils test data is included in Appendix B at the end of this report. Soil percolation testing was conducted on January 10, 2004 following presoaking. Percolation tests were conducted according to the methods described in the Ordinance Governing Individual On-Site Sewage Disposal Systems for Placer County. Utilizing a backhoe, soil profiles were exposed for examination at a total of 4 sites to a minimum depth of 96 inches. Percolation tests were conducted in the vicinity of each of the test pits.

Data from the preliminary soils investigation indicate that the soils throughout the subject property tend to be deep and well drained with effective soil depths ranging from ninety-six (96) to one hundred-twenty(120) inches. The soil types encountered were found to be similar to the Aiken soil series as mapped by the U.S.D.A. Soil Conservation Service. Soil percolation rates at depths of 11 to 40 inches ranged from 2.5 to 22.8 minutes per inch (mpi). The highest percolation rates were thought to be the result of water loss through a root hole. Groundwater was not encountered in any of the disposal trenches.

Based upon the results of the preliminary soils testing, the Geoflow Design Manual would suggest an allowable hydraulic loading rate of as much as 1.3 gpd/ft^2. For preliminary design purposes, a more conservative value of 1.1 gpd/ft^2 was used in the water balance. The Geoflow Design Manual indicates that recommended hydraulic loading rates include a factor of safety of at least 12 with regard to the equilibrium saturated hydraulic conductivity rate of the soil. By designing for a safety factor of 10 or 12, based on the saturated hydraulic conductivity, the system will be under-loaded most of the time but should function without surface failure during extreme wet periods. This design criteria will under-load the system at all times except when the soil is at or near saturation from rainfall.

It has been suggested that it would be appropriate to perform wet-weather testing in the wastewater disposal area for purposes of verifying that high groundwater will not become a problem with the disposal sites. Due to the nature of the topography and the soils that have been encountered, it is recommended that wet weather soils testing should not be necessary for this analysis. None of the test pits show signs of redoxymorphic features that would indicate high groundwater conditions. Additionally, field tests were performed during a relatively wet period that should have provided some indication of a potential problem.

Storage Considerations

Figure 4 shows a plot of the disposal field area verses the size of the storage pond required along with the total construction cost. It is apparent that the construction costs are minimized through the use of a larger disposal field and smaller storage pond. It is proposed that a disposal field of approximately 15-18 acres be used in combination with a storage facility that will hold at least 15 million gallons (about 46 acre-ft). Although a smaller storage pond could be used with more drip irrigation, the storage capacity will provide a factor of safety to have a place to store wastewater during periods of mechanical failures that might occur in the pressurized disposal field.

The sizing of storage ponds should also be influenced by requirements of the California Division of Safety of Dams of the Department of Water Resources. Ideally, it is beneficial to keep the dam height under 25 ft and the storage capacity under 50 acre-feet for any reservoir. If the dam height or storage capacity of any reservoir exceeds these values, the dam falls under the jurisdiction of the Division of Dam Safety. Design, construction, and operation of the dam becomes more costly due to design and construction oversight followed by periodic inspections by staff of the Division of Dam Safety.

Due to topographic limitations and the desire to limit the size of the reservoirs, it is anticipated that the desired storage capacity of 46 acre-ft might be split between at least two reservoirs.

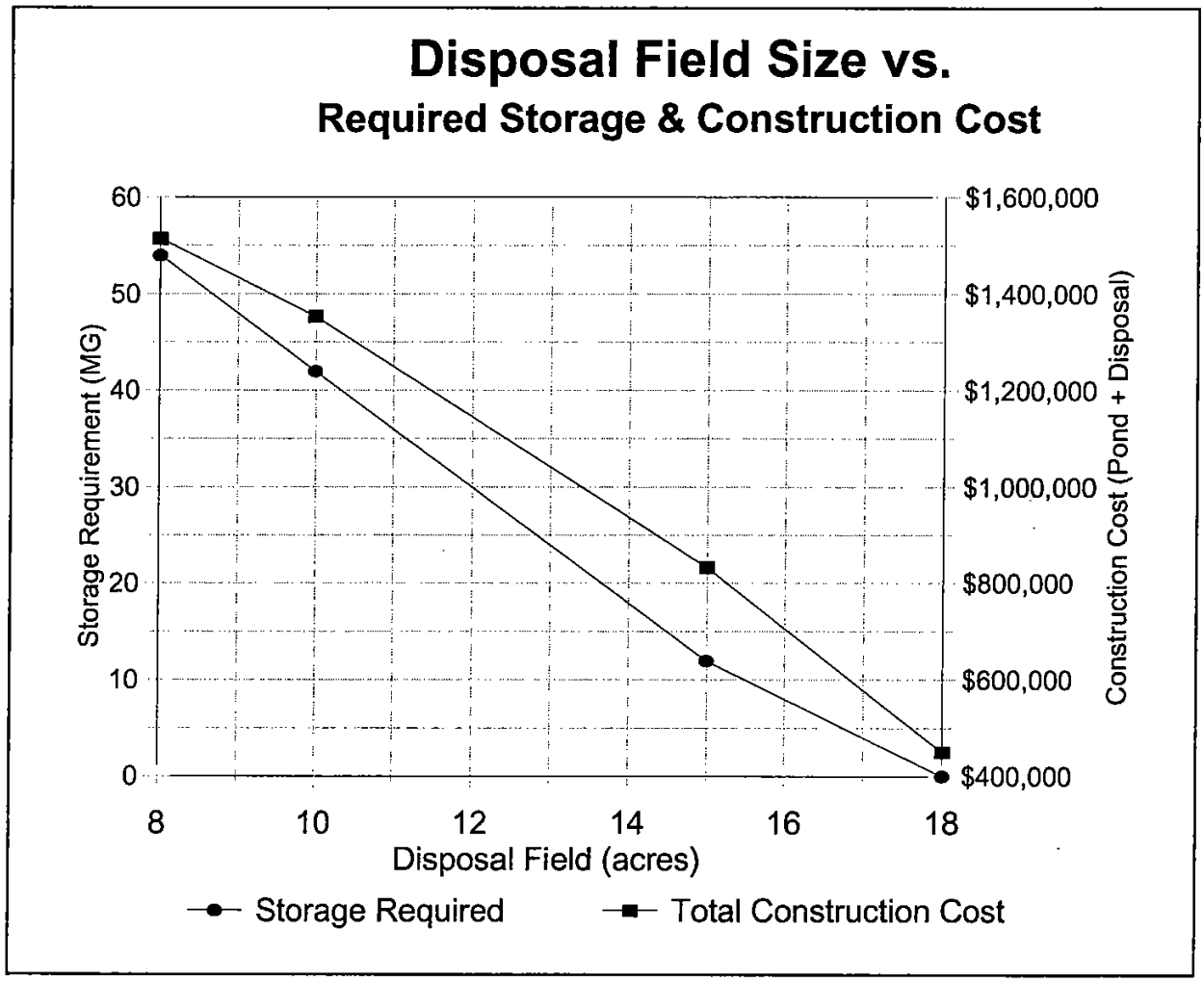


Figure 4, Relationship between size of disposal field, storage requirement, and combined construction cost.

8. Construction Costs

Preliminary construction cost estimates are included in Table 3 as an indicator of the cost of sewer facilities per parcel. It was originally requested that costs for construction of the collection system be included. However, due to the preliminary nature of this project, such costs are difficult to estimate. Cost estimates have been included for the lift stations only. It must be recognized that these estimates are based upon many assumptions that will be clarified as the project is better defined. The total cost estimate for the treatment facilities, disposal, and two sewer lift stations listed in Table 3 is $8.8 million. This value includes an allowance of 10% for engineering and a 20% contingency. This estimate translates to a cost of $4,080 per EDU without the collection system.

Table 3
Preliminary Opinion of Probable Construction Costs
Forest Ranch

Collection System		Extension
Collection System Pipelines, Service Laterals & Manholes		unknown
Sewer Lift Stations (2)	$	800,000
	Subtotal=$	800,000
Wastewater Treatment		
Aeration/Clarifier Units	$	800,000
Concrete Work (clarifiers)	$	560,000
Filters w/ PLC controller	$	450,000
Pad for Filters	$	28,000
Electrical & Instrumentation	$	600,000
Generator	$	200,000
Sludge Drying Beds	$	340,000
Operations Building	$	155,000
Laboratory Equipment	$	50,000
Headworks	$	350,000
Equalization Ponds	$	100,000
Aerators for Equalization Ponds	$	60,000
UV Disinfection	$	450,000
Misc. Mechanical, Piping, etc.	$	150,000
Maintenance Equipment (truck, backhoe, etc)	$	120,000
	Subtotal=$	4,413,000
Storage & Disposal		
Storage Ponds	$	525,000
Disposal Pump Station	$	450,000
Disposal Pipeline	$	150,000
Subsurface Drip (Geoflow)	$	400,000
Monitoring Wells	$	50,000
	Subtotal=$	1,575,000
	Total (Collection, Treatment, Disposal)=$	6,788,000
	Engineering,$	678,800
	Contingency (20%)$	1,357,600
	Project Total=$	8,824,400

9. Operation and Maintenance

A concern of agencies operating relatively small water or wastewater systems is that of the long term operating costs and the ability to keep the monthly fees for service at a reasonable level. Many agencies are being faced with new waste discharge requirements that are forcing them to invest money in plant upgrades. These costs are being passed on to the residents in the area. This section provides an estimate of an operations budget for the entity that will manage the wastewater facilities for the project.

Operation & Maintenance for Other Agencies

The first approach for estimating operations expenses was to analyze other agencies in the area with similar facilities and compare them based on the number of services within the service area. The second approach simply attempts to estimate the cost of various components of an operations budget based upon known facts about the system.

Several public agencies in the area own and operate sewer systems that collect and treat wastewater in smaller communities. Agencies included in this analysis were:

- City of Grass Valley
- City of Nevada City
- City of Wheatland
- City of Colfax
- Lake Oroville Area Public Utility District
- County of Nevada

Figure 5 provides a graphical representation of the annual budget for each agency plotted relative to the number of services within the agency's service area. These budgets include all operations costs including interest and principal reduction on any debt service that might exist. Except for the three smaller agencies, Figure 5 demonstrates the variability of the cost of sewer service within the area. If one considers that the County of Nevada has a relatively high cost for sewer service and Lake Oroville Area Public Utility District has a relatively low cost of service, the dotted line on Figure 5 could represent a reasonable approximation of what might be an average cost of service if more data were available.

Based upon the data from other agencies, one might conclude that a sewer agency with 2157 EDU might have an annual operations budget of $1,000,000 to $1,500,000 which would translate to a monthly sewer bill of at least $38/EDU. A factor that may reduce the budget for a new entity at Forest Ranch is that the agency should not face any debt during the initial period of operation.

Estimating Operations Costs by Category

The second approach used for estimating operations costs was to assemble a budget using reasonable expense categories where the costs for each category are based upon experience with other agencies and reasonable expectations. Table 4 provides a summary of such an analysis. The following is a discussion of some of major components of the operations budget.

Staff
Estimates of the number of staff that would be anticipated are based upon discussions with Placer County Facility Services staff and experience with other agencies. It was assumed that a minimum number of staff would include a general manager, at least two treatment plant operators, 2 maintenance personnel, a bookkeeper and one additional office assistant.

Capital Expenditures
Capital expenditures would provide money for annual equipment purchases. This value might cover office equipment, maintenance equipment and other components that might need replacement on a regular basis.

Sinking Fund
It is difficult to find general rules of thumb for establishment of an appropriate sinking fund. However, it is important for an agency to take advantage of times when there is no debt to set aside funds for future improvements. A conservative approach would provide for sufficient funds for complete replacement of all facilities at the end of their useful life. Very few agencies actually operate in this manner. The value of $100,000 would provide for about $3.6 million in 20 years (assuming 6% interest) which should be sufficient to replace many of the components of the plant that might be at the end of their service life.

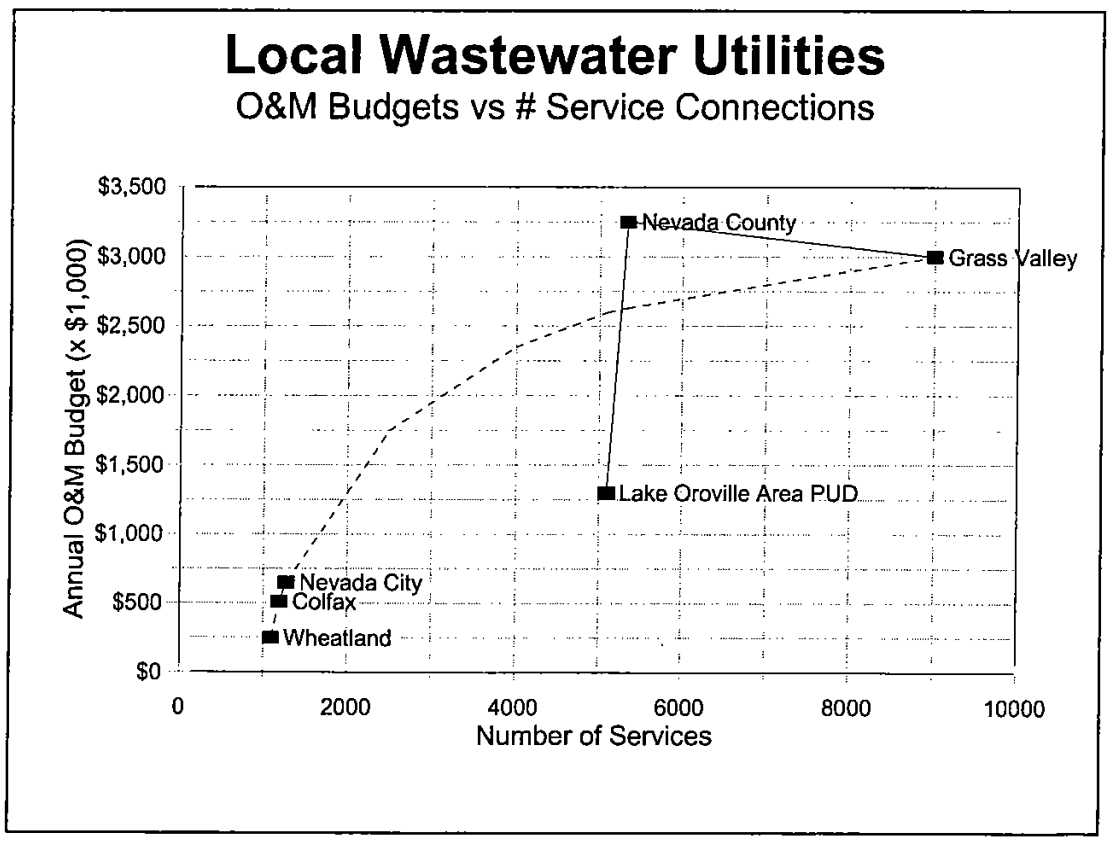


Figure 5, Comparison of annual operations budgets for various wastewater agencies.

Operations

The values included under the operations category include all expenses that might be anticipated as part of the daily activities associated with plant operation, lift station operation, and collection system maintenance. Estimates are based upon analysis of other agency expenses, estimated energy consumption, and discussions with operations staff at the Department of Facility Services.

Cost per EDU

During the initial periods of operation, it is anticipated that operations costs will likely be somewhat lower than that experienced by many of the other agencies in the area. Equipment will be new and there should not be significant issues with meeting current waste discharge requirements with a new treatment plant. With these facts in mind, an operations budget in the range of $800,000 per year may be reasonable. This would translate to a fee for sewer service of about $31 per month per EDU. The cost per resident could be higher during the initial periods of operation since there would be fewer residents to share the cost burden.

Table 4
Estimates of Operation & Maintenance Costs
Forest Ranch

Salaries, Wages, Benefits	$	350,000
Capital Expenditures	$	50,000
Sinking Fund	$	100,000
Operations		
Chemicals	$	5,000
Sludge Disposal	$	35,000
Consultants	$	25,000
Permitting	$	4,000
Laboratory Testing	$	50,000
Insurance	$	6,000
Plant Electricity	$	80,000
Pipe Maintenance/Cleaning	$	50,000
Lift Stations	$	40,000
Drip Irrigation Maintenance	$	20,000
Equipment Maintenance	$	15,000
Pond Maintenance	$	10,000
Total=	$	830,000

10. Conclusions

The purpose for this analysis was to evaluate the feasibility of providing a community wastewater collection, treatment and disposal system that would serve approximately 2157 EDU within the Forest Ranch development. Items considered included the type of collection system, the type of treatment facility, the method for wastewater disposal, waste discharge requirements, wastewater storage requirements, project construction costs, and operation and maintenance requirements.

Based upon this preliminary analysis of these issues, the following conclusions can be made:

a. A traditional gravity type collection system is feasible with the requirement that at least two sewer lift stations be included in the system.
b. A site built package type treatment facility with counter current aeration, clarification, and filtration could meet the needs of the project.
c. Reclaimed wastewater could be used for purposes of golf course irrigation once sufficient development exists to provide enough wastewater to meet the demand.
d. A subsurface drip irrigation system would be required to provide for a method of disposal during the winter months. The drip irrigation would require approximately 15-18 acres of total land area.
e. A storage reservoir would be required to store water during peak wet weather events and to provide emergency storage.
f. Total cost of construction for treatment, disposal and two sewer lift stations (not including the collection system) is estimated at $4,100 per EDU.
g. An estimate of operation and maintenance costs indicate that the monthly sewer fee could be more than $31/month once buildout conditions are reached.

Appendix A
Water Balance Table

Table A1
Water Balance Spreadsheet
Forest Ranch Wastewater Disposal
Subsurface Drip Irrigation (Geoflow)

Allowable Infiltration	1.1	gal/ft²/d
Allowable Application Rate	52.94	in/month
Disposal Field	16	acres
Pond Size	2.3	acres
Golf Course Demand	400000	gal/day
Runoff Factor	0	

Month	Plant Effluent flow GPD	Plant Effluent flow gal/month	Golf Course Irrigation gal/month	Available for Field Application gal/month	Available for Field Application in/month	Field ETo in/month	Rainfall in/month	Rainfall Influence in/month	Pond Evap in	Pond Infilt in	Pond Losses gal/mo	Max. Allowable Volume to Field gal/mo	From Plant To Field gal/mo	Excess Field Capacity gal/mo	Theoretical ΔStorage gal/month	Actual Storage gallons
Jan	860,000	25,800,000		25,800,000	59.39	1.41	9.70	0.00	0.99	26	-1,109,408	23,612,238	23,612,238	0	1,078,354	1,129,053
Feb	860,000	25,800,000		25,800,000	59.39	1.88	8.10	0.00	1.32	26	-1,229,875	23,816,424	23,816,424	0	753,701	1,882,754
Mar	860,000	25,800,000		25,800,000	59.39	2.99	8.10	0.00	2.19	26	-1,284,082	24,298,651	24,298,651	0	217,267	2,100,021
Apr	800,000	24,000,000	5,333,333	18,666,667	42.97	4.47	4.00	0.00	3.42	26	0	24,941,620	18,666,667	6,274,953	-6,274,953	0
May	650,000	19,500,000	9,333,333	10,166,667	23.40	5.91	2.00	0.00	5.41	26	-1,866,121	25,567,211	10,166,667	15,400,544	-17,266,665	0
Jun	600,000	18,000,000	12,000,000	6,000,000	13.81	7.46	0.60	0.00	7.06	26	-2,056,283	26,240,590	6,000,000	20,240,590	-22,296,873	0
Jul	540,000	16,200,000	12,000,000	4,200,000	9.67	9.00	0.10	0.00	8.16	26	-2,156,578	26,909,626	4,200,000	22,709,626	-24,866,204	0
Aug	540,000	16,200,000	12,000,000	4,200,000	9.67	8.21	0.20	0.00	7.49	26	-2,108,366	26,566,419	4,200,000	22,366,419	-24,474,786	0
Sep	540,000	16,200,000	12,000,000	4,200,000	9.67	6.23	0.70	0.00	5.66	26	-1,962,607	25,706,231	4,200,000	21,506,231	-23,468,838	0
Oct	540,000	16,200,000	9,333,333	6,866,667	15.81	4.19	2.60	0.00	3.50	26	-1,709,307	24,819,977	6,866,667	17,953,310	-19,662,618	0
Nov	540,000	16,200,000	3,000,000	13,200,000	30.38	1.84	6.50	0.00	1.38	26	-1,333,293	23,799,047	13,200,000	10,599,047	-11,932,340	0
Dec	800,000	24,000,000		24,000,000	55.24	1.37	8.40	0.00	0.95	26	-1,187,971	23,594,861	23,594,861	0	405,139	405,139
Jan	860,000	25,800,000		25,800,000	59.39	1.41	9.70	0.00	0.99	26	-1,109,408	23,612,238	23,612,238	0	2,187,762	2,592,901
Feb	860,000	25,800,000		25,800,000	59.39	1.88	8.10	0.00	1.32	26	-1,229,875	23,816,424	23,816,424	0	1,983,576	4,576,477
Mar	860,000	25,800,000		25,800,000	59.39	2.99	8.10	0.00	2.19	26	-1,284,082	24,298,651	24,298,651	0	1,501,349	6,077,826
Apr	700,000	21,000,000	5,333,333	15,666,667	36.06	4.47	4.00	0.00	3.42	26	0	24,941,620	15,666,667	9,274,953	-9,274,953	0
May	650,000	19,500,000	9,333,333	10,166,667	23.40	5.91	2.00	0.00	5.41	26	0	25,567,211	10,166,667	15,400,544	-15,400,544	0
Jun	600,000	18,000,000	12,000,000	6,000,000	13.81	7.46	0.60	0.00	7.06	26	-2,056,283	26,240,590	6,000,000	20,240,590	-20,240,590	0
Jul	540,000	16,200,000	12,000,000	4,200,000	9.67	9.00	0.10	0.00	8.16	26	-2,156,578	26,909,626	4,200,000	22,709,626	-22,709,626	0
Aug	540,000	16,200,000	12,000,000	4,200,000	9.67	8.21	0.20	0.00	7.49	26	-2,108,366	26,566,419	4,200,000	22,366,419	-22,366,419	0
Sep	540,000	16,200,000	12,000,000	4,200,000	9.67	6.23	0.70	0.00	5.66	26	-1,962,607	25,706,231	4,200,000	21,506,231	-21,506,231	0
Oct	540,000	16,200,000	9,333,333	6,866,667	15.81	4.19	2.60	0.00	3.50	26	-1,709,307	24,819,977	6,866,667	17,953,310	-17,953,310	0
Nov	540,000	16,200,000	3,000,000	13,200,000	30.38	1.84	6.50	0.00	1.38	26	-1,333,293	23,799,047	13,200,000	10,599,047	-10,599,047	0
Dec	800,000	24,000,000		24,000,000	55.24	1.37	8.40	0.00	0.95	26	-1,187,971	23,594,861	23,594,861	0	405,139	405,139
Jan	860,000	25,800,000		25,800,000	59.39	1.41	9.70	0.00	0.99	26	-1,109,408	23,612,238	23,612,238	0	2,187,762	2,592,901
Feb	860,000	25,800,000		25,800,000	59.39	1.88	8.10	0.00	1.32	26	-1,229,875	23,816,424	23,816,424	0	1,983,576	4,576,477
Mar	860,000	25,800,000		25,800,000	59.39	2.99	8.10	0.00	2.19	26	-1,284,082	24,298,651	24,298,651	0	1,501,349	6,077,826
Apr	700,000	21,000,000	5,333,333	15,666,667	36.06	4.47	4.00	0.00	3.42	26	0	24,941,620	15,666,667	9,274,953	-9,274,953	0
May	650,000	19,500,000	9,333,333	10,166,667	23.40	5.91	2.00	0.00	5.41	26	0	25,567,211	10,166,667	15,400,544	-15,400,544	0
Jun	600,000	18,000,000	12,000,000	6,000,000	13.81	7.46	0.60	0.00	7.06	26	-2,056,283	26,240,590	6,000,000	20,240,590	-20,240,590	0
Jul	540,000	16,200,000	12,000,000	4,200,000	9.67	9.00	0.10	0.00	8.16	26	-2,156,578	26,909,626	4,200,000	22,709,626	-22,709,626	0
Aug	540,000	16,200,000	12,000,000	4,200,000	9.67	8.21	0.20	0.00	7.49	26	-2,108,366	26,566,419	4,200,000	22,366,419	-22,366,419	0
Sep	540,000	16,200,000	12,000,000	4,200,000	9.67	6.23	0.70	0.00	5.66	26	-1,962,607	25,706,231	4,200,000	21,506,231	-21,506,231	0
Oct	540,000	16,200,000	9,333,333	6,866,667	15.81	4.19	2.60	0.00	3.50	26	-1,709,307	24,819,977	6,866,667	17,953,310	-17,953,310	0
Nov	540,000	16,200,000	3,000,000	13,200,000	30.38	1.84	6.50	0.00	1.38	26	-1,333,293	23,799,047	13,200,000	10,599,047	-10,599,047	0
Dec	800,000	24,000,000		24,000,000	55.24	1.37	8.40	0.00	0.95	26	-1,187,971	23,594,861	23,594,861	0	405,139	405,139

Pond evaporation based upon pan data from Auburn Dam site (1972-1984)
ETo, Estimate from climatological data at Camino, California Irrigation Management Information System, DWR

Appendix B
Soils Test Data

aqua-terra
environmental
consultants

213 Sawyer St., Auburn, CA. 95603
(530) 885-0573

12 January 2003

Sauers Engineering, Inc.
440 Lower Grass Valley Rd., Suite A
Nevada City, CA. 95959
Attn. Mr. Dean Marsh

Re: Wastewater Disposal Feasibility Testing- Forest Ranch Subdivision

Dear Dean,

Enclosed is a copy of the report entitled **Wastewater Disposal Feasibility Testing Forest Ranch Subdivision In Foresthill, Placer County, California.**

Based upon the results of the preliminary soils testing conducted by this firm, soils on the subject property to be highly suitable for purposes of wastewater disposal. Soils in the areas tested were found to be deep and well drained with effective soil depths of at least ninety-six (96) inches. Soil percolation rates, at depth of 11 to 40 inches, were found to range from 2.5 to 22.8 mpi. Please note that due to the presence of root holes, two (2) of the perc rates were excessively fast. I would recommend that you exclude these two perc results when you calculate your wastewater loading rates.

Also enclosed is a billing invoice for the professional services conducted to date. If you have any questions or would like to discuss this matter further, please feel free to contact me at (530) 885-0573. Its been a pleasure working with you on this project.

Sincerely,

David G. Honeycutt, M.A.
Registered Environmental Health Specialist



aqua-terra
environmental
consultants

213 Sawyer St., Auburn, CA. 95603
(530) 885-0573

WASTEWATER DISPOSAL FEASIBILITY TESTING
FOREST RANCH SUBDIVISION
IN
FORESTHILL, PLACER COUNTY, CALIFORNIA

12 January 2003

Situs Information:

Applicant: Sauers Engineering, Inc.
440 Lower Grass Valley Rd., Suite A
Nevada City, CA. 95959
Attn. Dean Marsh

Property Location: Foresthill Rd. In Foresthill, Placer County, CA.

Property Size: 2,615 AC.

Water Supply: FHPUD

Introduction:

Sauers Engineering, Inc. is presently in the process of responding to comments received from the Placer County Department of Facilities Services during environmental review of the Forest Ranch Subdivision Draft Environmental Impact Report. Aqua-Terra has been retained to conduct preliminary soils testing to assist in evaluating site conditions for a proposed drip irrigation wastewater disposal system(s). The purpose of this report will be to present the results of the soils testing conducted to date by this firm.

Methodology:

Select areas of the property were chosen as probable sites for locating wastewater disposal fields. Utilizing a backhoe the soil profile was exposed for examination. Soil profile testing was conducted on 9 January 2004.

Soil percolation testing was conducted on 10 January 2003 following presoaking. Soil percolation test holes were located adjacent to the soil mantle test pits. The perc rate was established by taking a minimum of three (3) 30 minute readings. In test holes where four inches or more of water seeped away during the first 30 minute test interval 10 minute readings were taken. The last reading was used as the design perc rate provided the difference with the prior reading did not exceed 10 percent. If the difference with the prior reading does exceed 10%, additional readings are taken until a stabilized rate occurs. Percolation tests were conducted according to the methods described in the Ordinance Governing Individual On-Site Sewage Disposal Systems. Soil profile descriptions and percolation test results are included with this report for reference as well as a site plan which details the location of the tests.

Representative Soil Profiles:

(colors are moist unless otherwise indicated)

Soil Mantle #1: (Effective soil depth of 96 inches)
0 to 4 inches, dark reddish brown (2.5YR3/3) gravelly clay loam; damp and friable; subangular blocky structure; common fine and very fine roots; slightly plastic and slightly sticky; clear smooth boundary.
4 to 12 inches, dark reddish brown (2.5YR3/4) clay loam plus; damp and friable, compacted; massive structure; common fine roots; slightly sticky and plastic; clear smooth boundary.

12 to 38 inches, red (10R5/6) clay; damp and very friable; subangular blocky structure; common fine and medium roots; sticky and plastic; clear smooth boundary.
38 to 72 inches, red (7.5R4/8) clay; subangular blocky structure; damp and friable; few fine and medium roots; sticky and plastic; gradual wavy boundary.
72 to 96 inches, red and brownish yellow (7.5R4/8 and 10YR6/6) decomposed Breccia crushing to a gravelly silty clay; damp and friable; massive structure; sticky and plastic; few roots.

Soil Mantle #2: (Effective soil depth of 120 inches)
0 to 7 inches, dark reddish brown (2.5YR3/3) loam plus; damp and friable; granular structure; common fine and very fine roots; nonplastic and slightly sticky; clear smooth boundary.
7 to 18 inches, dark reddish brown (2.5YR3/4) clay loam plus; damp and friable; subangular blocky structure; few fine roots; slightly sticky and slightly plastic to plastic; clear smooth boundary.
18 to 39 inches, red (10R5/8) clay; damp and very friable; subangular blocky structure; common fine, medium and coarse roots; sticky and plastic; clear smooth boundary.
39 to 78 inches, red (2.5YR5/8) silty clay; subangular blocky structure; damp and friable; few fine and medium roots; sticky and very plastic; gradual smooth boundary.
78 to 120 inches, light brown, reddish yellow, yellowish red and very pale brown (7.5YR6/4, 5YR7/6, 5/6 and 10YR7/3 var.) decomposed intensely Breccia crushing to a gravelly silty clay; damp and friable; subangular blocky structure; sticky and plastic; few fine and medium roots.

Soil Mantle #3: (Effective soil depth of 96 inches)
0 to 8 inches, dark reddish brown (2.5YR3/3) loam; damp and friable; granular structure; many fine and very fine roots; nonplastic and nonsticky; clear smooth boundary.
8 to 20 inches, reddish brown (2.5YR4/4) clay loam; damp and very friable; subangular blocky structure; many fine, medium and coarse roots; slightly sticky and slightly plastic; clear smooth boundary.
20 to 43 inches, red (10R5/6) gravelly clay; damp and very friable; subangular blocky structure; common fine, medium and coarse roots; very sticky and plastic; clear smooth boundary.
43 to 76 inches, red (7.5R4/8) gravelly silty clay; subangular blocky structure; damp and friable; few fine and medium roots; very sticky and plastic; clear smooth boundary.
76 to 96 inches, red (5R4/6) gravelly silty clay, some stones; damp and friable; massive structure; sticky and plastic; few roots.

Soil Mantle #4: (Effective soil depth of 72 inches)
0 to 4 inches, reddish brown (2.5YR4/4) gravelly clay loam; damp and friable; subangular blocky structure; many fine and very fine roots; slightly plastic and slightly sticky; clear smooth boundary.
4 to 22 inches, red (10R4/6) gravelly clay loam plus; damp and very friable; subangular blocky structure; common fine, medium and coarse roots; sticky and plastic; clear smooth boundary.
22 to 40 inches, red (10R4/8) silty clay, some stones; damp and very friable; subangular blocky structure; few fine and medium roots; sticky and plastic; gradual smooth boundary.
40 to 96 inches, light gray, red and pinkish gray (7.5YR7/1, 7.5R4/8 and 5YR7/1, 7/2 var.) decomposed intensely weathered Breccia crushing to a very gravelly silty clay; damp and friable to firm; subangular to angular blocky structure; sticky and plastic; few roots.

Percolation Test Results:

Soil Mantle Test Pit #1			
Test Hole	1	2	3
Depth (In.)	11	24	34
Time (Min.)		Drop from Datum (In.)	
30(10)	5.2	2.5	3.1
60(20)	5.0	2.2	2.8
90(30)	4.9	2.2	2.6
120(40)	4.9	-	-
150(50)	5.2	-	-
180(60)	5.0	-	-
Perc Rate (MPI)	2.0	13.6	11.5
Corrected (MPI)	2.5*	15.5	13.3

Soil Mantle Test Pit #2			
Test Hole #	1	2	3
Depth (In.)	12	26	36
Time (Min.)		Drop from Datum (In.)	
30(10)	2.9	1.9	3.1
60(20)	2.6	1.6	2.3
90(30)	2.5	1.5	2.1
120(40)	-	-	-
150(50)	-	-	-
180(60)	-	-	-
Perc Rate (MPI)	12.0	20.0	14.3
Corrected (MPI)	13.7	22.8	16.3

Soil Mantle Test Pit #3			
Test Hole #	1	2	3
Depth (In.)	12	26	38
Time (Min.)		Drop from Datum (In.)	
30(10)	3.8	2.9	3.0
60(20)	3.1	2.3	2.4
90(30)	3.0	2.3	2.3
120(40)	2.9	-	-
150(50)	-	-	-
180(60)	-	-	-
Perc Rate (MPI)	10.3	13.0	13.0
Corrected (MPI)	11.8	14.9	14.9

Soil Mantle Test Pit #4

Test Hole #	1	2	3
Depth (In.)	12	30	40
Time (Min.)		Drop from Datum (In.)	
30(10)	2.8	2.9	5.0
60(20)	2.6	2.6	5.0
90(30)	2.5	2.5	4.8
120(40)	2.3	-	5.0
150(50)	2.1	-	4.4
180(60)	2.0	-	4.3
Perc Rate (MPI)	5.0	12.0	2.3
Corrected (MPI)	5.7	13.7	2.7*

*- Root hole observed in test hole sidewall caused excessively fast perc rate.

Findings:

Based upon the results of this preliminary investigation, soils located in the areas tested throughout the property were found to be deep and well drained with effective soils depths ranging from ninety-six (96) to one hundred-twenty (120) inches. The soil types encountered were found to be similar to the Aiken soil series as mapped by the U.S.D.A. Soil Conservation Service.

Soil percolation testing was conducted adjacent to the soil mantle test pits. Corrected soil percolation rates, at depths of 11 to 40 inches, ranged from 2.5 to 22.8 minutes per inch (mpi).

Slopes in the areas tested were found to range from nearly level to approximately 15 percent. Please refer to the attached site map for the location of soil mantle test pits.



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS 1000 ft Scale: 1 : 25,000 Detail: 13-0 Datum: WGS84

Appendix C

FORESTHILL PUBLIC UTILITY DISTRICT
P.O. BOX 266 24540 MAIN STREET
FORESTHILL, CALIFORNIA 95631
530-367-2511 • FAX 530-367-4385

BOARD OF DIRECTORS
Charles E. Cooke, Jr.
John E. Davis
Brett C. Grant
George S. Shaw
John A. Sweikar

Kurt W. Reed, General Manager
Paul Chamberlain, District Counsel

RECEIVED
FEB 2 0 2004
BY:

February 18, 2004

Quad Knopf
Roberta MacGlashan, Project Manager
One Sierragate Plaza, Suite 270C
Roseville, CA 95678

Subject: Forest Ranch, SB610 Compliance Study

Dear Ms. MacGlashan:

Enclosed please find the revised SB610 Compliance Study for the Forest Ranch project.

If you have questions or comments please contact the District's General Manager, Kurt W. Reed.

Sincerely,

Patricia Pappas
Business Manager

ECO:LOGIC Engineering

January 28, 2004
Job Number FHIL03-002

FORESTHILL PUBLIC UTILITY DISTRICT
SB610 COMPLIANCE STUDY

The purpose of this report is to provide the information required in SB610 for the Forest Ranch project. It is a revision of an earlier report dated January 15, 2003 for the same project that was limited to those parts of the project that were located within the District's present boundaries.

The Forest Ranch project is a planned residential development on 2,615 acres, approximately 1,000 of which are within the present boundaries of the Foresthill Public Utility District (PUD). Up to 2,213 residential units are proposed, but it is understood that only 524 of these units are covered by the current 1981 Foresthill General Plan and located within the present boundaries of the District.

The Board of Directors of the Foresthill PUD has expressed reservations at committing or inferring that the District will provide water supplies to proposed projects that are outside the District's present boundaries, or are for projects not permitted by a current General Plan. On two occasions, District staff met with the Placer County Planning Department to discuss these reservations.

The issue has been resolved by the Placer County Planning Department agreeing that neither the County nor LAFCO could force the District to provide water service to projects that are the outside the District's Service Area Boundaries but are within its Sphere of Influence.

In agreeing to prepare this revised SB610 Compliance Study, the District is reaffirming its historical policy of reserving its water supplies for proposed projects and existing lots within present District Boundaries on a first come first serve basis, and the only water that would be available to projects outside District Boundaries would be surplus supplies projected to be available after full buildout within the Boundaries based on the current General Plan. This surplus water would only be available after a proposed project annexed to the District, and only to the extent it exceeded the buildout needs of the District before the annexation.

This SB610 compliance study provides two separate water use projections for Forest Ranch: the first is limited to the 524 residential units within the Forest Ranch project that are permitted by the current General Plan and are located within the District's present boundary. The second is for the remaining 1689 units located outside the present service area boundary.

Water System Master Plan

The District does not have an urban water management plan such as is required for larger water systems. The information provided in this report is taken from the District's Water System Master Plan dated May 15, 1992. Although many of the capital improvements recommended in this Master Plan have been constructed by the District, the plan is still accurate in terms of its analysis of available water supplies under various climatological conditions, and its projection of the water demands for the ultimate development of the

District.

Water Demands

The District's existing and planned future demands are as follows, based on Table 5 of the District's Water System Master Plan.

	Annual acre feet per year
Existing Water Demand (a)	1,154
Forest Ranch project (524 dwelling units at 430 gpd each within existing District)	252
Other planned future demands	1,026
Total demands at buildout	2,432 (b)

(a) 1690 single family residential connections, 327 multifamily connections, and 94 commercial/industrial connections.
(b) Excludes demand from the 1689 residential connections in the Forest Ranch that are outside the District's Boundary. These demands are estimated at 624 acre feet per year assuming all the units have water demands similar to multifamily units.

These demands vary slightly from those projected in the Water System Master Plan, 1992, to reflect growth since 1992 and the fact that the lumber mill is no longer a major customer. Attached are calculations showing these variations.

Water Supplies

The Sugar Pine Project was completed in 1983 to ensure that the Foresthill PUD would have a reliable supply of water. Prior to 1983, the Foresthill community was dependent upon a combination of surface water supply and groundwater wells. The lack of reliability of these surface and groundwater sources became apparent during the 1976/1977 drought and led to the construction of the Sugar Pine Project.

The Sugar Pine reservoir project includes a 7,000 acre foot reservoir on North Shirttail Creek, a 24-inch diameter supply pipeline, and treatment, storage, and transmission piping. Sugar Pine reservoir is fed by the 10 square-mile watershed area of North Shirttail Creek.

Annual Yield

The District's 1992 Water System Master Plan included a detailed drought frequency analysis and water budget to determine if the Sugar Pine system was capable of supplying the ultimate demand during a drought year or a series of drought years. The analyses indicated the following:

- Single Year Drought Followed by a Mean Water Year

  Sugar Pine Reservoir would refill by the end of the second year if a 100-year drought were followed by a mean water year.

- Multiple Year Droughts

  The District has adopted as its reliability standard a 10-year drought followed by a

100-year drought followed by a mean water year. Under these conditions, the yield of the existing Sugar Pine Project is 2,707 acre feet per year, which exceeds the 2,432 acre feet per year demand at buildout.

The existing Sugar Pine Project is therefore capable of supplying the ultimate demands of the District at buildout under the most severe drought conditions.

The District's other sources of water dried up during the 1976/1977 drought and are not considered reliable sources for ultimate buildout within the District's present Boundary.

Agreements

The water rights associated with the Sugar Pine Project are for up to 24,076 acre feet per year and consist of the following. These rights will transfer to the District.

1. Direct diversion of up to 18 cubic ft/sec from North Shirttail Creek during the period November 1 to July 1.

2. Diversion from storage in Sugar Pine reservoir of up to 15,000 acre feet per year.

However, although the rights are for "up to 24,076 acre feet per year" this amount is well in excess of the calculated firm-yield of the project of 4,700 acre feet per year as well as the multiple drought year yield of 2,707 acre feet per year.

Sufficiency

Based on the projected water demand of 2,432 acre feet per year under ultimate buildout within the District service area, it is apparent that the District's has sufficient supplies to meet ultimate requirements under drought conditions. These requirements include water demands from the 524 dwelling units proposed for Forest Ranch that are located within the District's present boundaries.

Surplus Supplies

Under drought conditions at buildout within the District's present Boundaries, there is a surplus of 275 acre feet of water per year. This is sufficient to supply approximately 745 units assuming water use similar to multifamily units, which is 330 gallons per day per unit. If single family units are proposed, the surplus of 275 acre feet per year could supply approximately 571 units at 430 gallons per day per unit.

Future Supplies

The District has no plans to develop or acquire additional supplies.

ECO:LOGIC

PROJECT	Forest hill PUD	JOB NO. FHIL03002	BY FSF	DATE 1/26/04
SUBJECT	Water Demands & Drought Condition Supply		CHECKED	PG 1 OF 5

From Table 5, Master Water Plan, May 15, 1992

Ultimate Water Demand = 2,330,640 gpd

Less Industrial (159,100) gpd

Net Ult demand = 2,171,540 gpd = 2432 ac-ft/yr

Existing water demands (Kurt Reed, 1-15-04)

= 1154 ac-ft/yr

Forest Ranch units within District = 524 unit @ 430 gpd/unit

= 225,320 gpd = 252 ac-ft/yr

Other planned future uses within District =

$= 2432 \frac{\text{Ac-Ft}}{\text{yr}} - 1154 \frac{\text{ac-ft}}{\text{yr}}$ (existing) $- 252 \frac{\text{ac-ft}}{\text{yr}}$ (Forest Ranch)

= 1026 ac-ft/yr

Minimum water supply under drought conditions

from Master Water Plan, Paragraph E, p. 54 and

Spread Sheets on pages 107 & 108 = 2707 ac-ft/yr

Surplus water = 2707 − 2432 = 275 Ac-Ft/yr

If multi family units, this will supply $275 \times 326{,}000 \frac{\text{gal}}{\text{ac}} \times \frac{1}{345 \frac{\text{D}}{\text{yr}}} \times \frac{1}{330 \text{ gpd}}$

= 745 units

If single family, it will supply $275 \times 326{,}000 \times \frac{1}{365} \times \frac{1}{430}$

= 571 units

Gibson & Associates
Consulting Civil Engineers

However, based on conversations the District Manager has recently had with potential developers, water demands for certain blocks of land were estimated at land use densities in excess of the General Plan densities. This included those land areas zoned "TPZ, Timber". Accordingly, these areas were assigned a per acre density equal to the surrounding lands as shown on the 1981 General Plan.

Table 5 lists the projected ultimate water demands by customer class utilizing the average daily demands adjusted for the 35% increase as shown in Table 4.

Table 5

Ultimate Average Daily Water Demands (gpd)

	Number of Units			Per Dwelling Unit Demand	Ultimate Buildout Demand
Classification	Existing	Future	Total		
Residential	1,331	2,535	3,866	430	1,662,380
Multi-family	315	647	962	330	317,460
Commercial	65	70	135	1,420	191,700
Industrial	1	0	1	159,100	159,100
Total	1,712	3,252	4,964		2,330,640[4]

[4] This is equivalent to an average annual demand of 2,610 acre feet for the ultimate buildout of the District.

Giberson & Associates
Consulting Civil Engineers

E. DESIGN EVENT WATER SUPPLY

The water supply resulting from the Design Event occurring at ultimate buildout of the community was analyzed assuming normal consumption rates (no conservation). The results of this analysis indicate that the Sugar Pine Reservoir is capable of supplying 2,707 AFA to meet the water needs of the community at ultimate buildout (2,610 AFA) while meeting all downstream flow requirements.

Under the set of assumptions utilized in this study, the reservoir is capable of meeting the proposed water supply reliability standard while not violating the minimum reservoir level (1,100 AFA)that must be maintained by contract with the U.S. Bureau of Reclamation. Approximately 1,349 acre feet of water will be left in storage at the lowest reservoir level prior to the creek re-filling the reservoir. Due to the sensitive nature of the frequency analysis and the less that conservative estimates of evaporation and rainfall during a drought year, this 249 acre foot "excess" should be held in reserve as a safety factor.

Foresthill Public Utility District

Job # 91006.03
File : ressup9
09-Apr-92

Sugar Pine Reservoir
Predicted Storage Level - Ultimate Bulldout
10 Year Drought followed by a 100 Year Drought followed by a Mean Year.

Annual Consumption 2,610 **ac.ft.**
Min. Pool 1,349 **ac.ft.**

All flows are in acre-feet.

Month - Water Yr.	Inflow	Monthly Requirements: Downstream Water Rights	Monthly Requirements: Domestic Consumption	Monthly Requirements: Fish Flow Reqirements	Net of Rainfall (Evaporation)	Spillway Discharge	Storage (Last Day of Mo.)
	+	-	-	-	+/(-)		
May-0							7,000
Jun-1	114	32	254	114	-23	0	6,691
Jul-1	40	32	346	40	-9	0	6,305
Aug-1	21	21	347	31	0	0	5,927
Sep-1	26	26	285	31	26	0	5,637
Oct-1	39	32	239	39	36	0	5,402
Nov-1	77	32	183	77	44	0	5,231
Dec-1	125	32	186	123	56	0	5,072
Jan-1	246	32	154	123	56	0	5,065
Feb-1	477	32	134	307	36	0	5,105
Mar-1	970	32	130	307	7	0	5,614
Apr-1	641	32	161	307	-21	0	5,734
May-1	223	32	189	223	-21	0	5,492
Jun-2	23	23	254	30	-23	0	5,185
Jul-2	8	8	346	31	-9	0	4,800
Aug-2	4	4	347	31	0	0	4,422
Sep-2	5	5	285	30	26	0	4,133
Oct-2	8	8	239	31	36	0	3,899
Nov-2	15	4	183	30	44	0	3,742
Dec-2	25	4	186	31	56	0	3,603
Jan-2	49	4	154	49	56	0	3,500
Feb-2	95	4	134	95	36	0	3,398
Mar-2	194	6	130	194	7	0	3,270
Apr-2	128	10	161	128	-21	0	3,078
May-2	45	20	189	45	-21	0	2,847
Jun-3	186	25	254	119	-23	0	2,612
Jul-3	62	32	346	62	-9	0	2,226
Aug-3	32	32	347	32	0	0	1,847
Sep-3	48	20	285	48	26	0	1,568
Oct-3	118	15	239	118	36	0	1,349
Nov-3	350	4	183	119	44	0	1,438
Dec-3	1228	4	186	123	56	0	2,410
Jan-3	1974	4	154	123	56	0	4,158
Feb-3	2088	4	134	277	36	0	5,867
Mar-3	2287	6	130	307	7	704	7,000
Apr-3	1604	10	161	297	-21	1157	7,000
May-3	722	20	189	307	-21	226	7,000

Formula : Storage = previous storage + inflow - water rights - consumption - fish flow +(-) rainfall(evap) (Max. 7000 ac.ft., excess spills)

Foresthill Public Utility District

Job # 91006.03
File : ressup9
09-Apr-92

Sugar Pine Reservoir
Predicted Storage Level - Ultimate Buildout
10 Year Drought followed by a 100 Year Drought followed by a Mean Year.

Annual Consumption 2,707 ac.ft.
Min. Pool 1,100 ac.ft.

All flows are in acre-feet.

Month - Water Yr.	Inflow	Monthly Requirements: Downstream Water Rights	Monthly Requirements: Domestic Consumption	Monthly Requirements: Fish Flow Reqirements	Net of Rainfall (Evaporation)	Spillway Discharge	Storage (Last Day of Mo.)
	+	-	-	-	+/(-)		
May-0							7,000
Jun-1	114	32	264	114	-23	0	6,682
Jul-1	40	32	358	40	-9	0	6,283
Aug-1	21	21	360	31	0	0	5,892
Sep-1	26	26	296	31	26	0	5,591
Oct-1	39	32	248	39	36	0	5,347
Nov-1	77	32	190	77	44	0	5,170
Dec-1	125	32	193	123	56	0	5,003
Jan-1	246	32	160	123	56	0	4,990
Feb-1	477	32	139	307	36	0	5,026
Mar-1	970	32	135	307	7	0	5,530
Apr-1	641	32	167	307	-21	0	5,644
May-1	223	32	197	223	-21	0	5,394
Jun-2	23	23	264	30	-23	0	5,078
Jul-2	8	8	358	31	-9	0	4,680
Aug-2	4	4	360	31	0	0	4,289
Sep-2	5	5	296	30	26	0	3,990
Oct-2	8	8	248	31	36	0	3,747
Nov-2	15	4	190	30	44	0	3,583
Dec-2	25	4	193	31	56	0	3,437
Jan-2	49	4	160	49	56	0	3,328
Feb-2	95	4	139	95	36	0	3,221
Mar-2	194	6	135	194	7	0	3,088
Apr-2	128	10	167	128	-21	0	2,890
May-2	45	20	197	45	-21	0	2,652
Jun-3	186	25	264	119	-23	0	2,408
Jul-3	62	32	358	62	-9	0	2,009
Aug-3	32	32	360	32	0	0	1,616
Sep-3	48	20	296	48	26	0	1,327
Oct-3	118	15	248	118	36	0	1,100
Nov-3	350	4	190	119	44	0	1,182
Dec-3	1228	4	193	123	56	0	2,147
Jan-3	1974	4	160	123	56	0	3,889
Feb-3	2088	4	139	277	36	0	5,593
Mar-3	2287	6	135	307	7	424	7,000
Apr-3	1604	10	167	297	-21	1151	7,000
May-3	722	20	197	307	-21	219	7,000

Formula : Storage = previous storage + inflow - water rights - consumption - fish flow +(-) rainfall(evap) (Max. 7000 ac.ft., excess spills)

Appendix D

CALIFORNIA
FOREST STEWARDSHIP PROGRAM

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For Landowners
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Watercourse classification for forestry purposes

Class I--watercourses or springs serving as domestic water supplies, onsite and/or within 1000 feet downstream of the operations area, and/or those watercourses where fish are always or seasonally present, including habitat to sustain fish migration and spawning.

Class II--those watercourses where fish are always or seasonally present offsite within 1000 feet downstream, and/or watercourses which contain aquatic habitat for non-fish aquatic species. Class III watercourses that are tributary to Class I watercourses (hence within 1000 feet of a fish-bearing watercourse) are specifically excluded.

Class III--watercourses that have no aquatic life present, but still show evidence of being capable of sediment transport downstream to Class I or Class II watercourses under normal high water flow conditions after completion of timber operations.

Class IV--human-made watercourses, usually supplying downstream established domestic, agricultural, hydroelectric or other beneficial uses.

For more information on the California Forest Stewardship Program, contact Jeffrey Calvert, Forestry Assistance, California Department of Forestry & Fire Protection, PO Box 944246, Sacramento, CA 94244-2460. (916) 653-8286.

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Modified: 7/29/02

A system of classifying or ordering streams, into a hierarchy was developed by Horton (1945). Horton's concept has been modified several times, but the modified system by Strahler (1957) is the most commonly used. The uppermost streams in this ordering system have no tributaries. These streams are considered first-order streams. A second-order stream is the result of a confluence of two first-order streams. A third-order stream is then result of the union of two second-order streams. This relationship continues to increase as long as streams of the same order join. In other words if a first-order stream flows into a second order stream, the union does not form a third-order stream, but continues as a second-order stream. Large river systems will have streams as large as eleventh-order streams.
Source: UWM.edu

Stream classification

The Horton stream-order classification can help distinguish headwater streams. The smallest, permanently flowing tributaries of a drainage network are termed 1st-order; the union of two 1st-order streams creates a 2nd-order stream, and so on.

Source: American Rivers

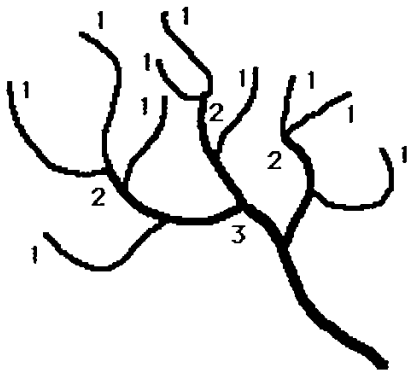


11) Introduction to Geomorphology

(I) Stream Morphometry

Morphometry is defined as the measurement of the shape. Morphometric studies in the field of hydrology were first initiated by R.E. Horton and A.E. Strahler in the 1940s and 1950s. The main purpose of this work was to discover holistic **stream** properties from the measurement of various stream attributes.

One of the first attributes to be quantified was the hierarchy of stream segments according to an ordering classification system (**Figure 11l-1**). In this system, channel segments were ordered numerically from a stream's **headwaters** to a point somewhere down stream. Numerical ordering begins with the tributaries at the stream's headwaters being assigned the value 1. A stream segment that resulted from the joining of two 1st order segments was given an order of 2. Two 2nd order streams formed a 3rd order stream, and so on. Analysis of this data revealed some interesting relationships. For example, the ratio between the number of stream segments in one order and the next, called the **bifurcation ratio**, was consistently around three. R.E. Horton called this association the **law of stream numbers**.



Order	Number of Segments	Bifurcation Ratio
1	10	3.33
2	3	3.00
3	1	

Figure 11l-1: Example of stream ordering and the calculation of bifurcation ratio.

R.E. Horton applied morphometric analysis to a variety of stream attributes and from these studies he proposed a number of **laws of drainage composition.** Horton's **law of stream lengths** suggested that a geometric relationship existed between the number of stream segments in successive stream orders. The **law of basin areas** indicated that the mean basin area of successive ordered streams formed a linear relationship when graphed. The results described above and the outcomes of other related analyses convinced researchers that these findings suggested that some underlying factor (or factors) was governing the structure of the various stream attributes in a similar predictable way. Studies of other natural branching networks have revealed patterns similar to the stream order model. For example, the bifurcation ratio of three has also been discovered in the rooting systems of plants, the branching structure of woody plants, and the veination in leaves and the human circulatory system.

In addition to the mathematical relationships found in stream ordering, various aspects of drainage network forms were also found to be quantifiable. One such relationship was **drainage density**. Drainage density is a measure of the length of **stream channel** per unit area of drainage basin. Mathematically it is expressed as:

Drainage Density (Dd) = Stream Length / Basin Area

The measurement of drainage density provides a hydrologist or geomorphologist with a useful numerical measure of landscape dissection and **runoff** potential. On a highly permeable landscape, with small potential for runoff, drainage densities are sometimes less than 1 kilometer per square kilometer. On highly dissected surfaces densities of over 500 kilometers per square kilometer are often reported. Closer investigations of the processes responsible for drainage density variation have discovered that a number of factors collectively influence stream density. These factors include climate, topography, soil **infiltration** capacity, vegetation, and geology.

Appendix E

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\forestex.urb
Project Name: Forest Ranch Existing Zoning
Project Location: Mountain Counties and Rural Counties
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	27.34	6.76	9.34	0.20	0.03

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	24.88	42.14	317.68	0.27	47.82

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	52.22	48.91	327.02	0.47	47.85

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\forestex.urb
Project Name: Forest Ranch Existing Zoning
Project Location: Mountain Counties and Rural Counties
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.52	6.68	2.84	-	0.01
Wood Stoves - No summer emissions					
Fireplaces - No summer emissions					
Landscaping	0.75	0.09	6.50	0.20	0.01
Consumer Prdcts	26.08	-	-	-	-
TOTALS(lbs/day,unmitigated)	27.34	6.76	9.34	0.20	0.03

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	24.88	42.14	317.68	0.27	47.82
TOTAL EMISSIONS (lbs/day)	24.88	42.14	317.68	0.27	47.82

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 70 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	5.54 trips / dwelling units	533.00	2,952.82

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.70	1.10	98.70	0.20
Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Area

Changes made to the default values for Operations

The operational emission year changed from 2004 to 2010.
The operational winter selection item changed from 2 to 1.
The operational summer temperature changed from 60 to 70.
The travel mode environment settings changed from both to: none

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\forestex.urb
Project Name: Forest Ranch Existing Zoning
Project Location: Mountain Counties and Rural Counties
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	763.05	35.33	1,778.83	4.69	272.51

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	31.98	56.08	391.57	0.27	47.82

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	795.03	91.42	2,170.40	4.96	320.33

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\forestex.urb
Project Name: Forest Ranch Existing Zoning
Project Location: Mountain Counties and Rural Counties
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Winter)

AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.52	6.68	2.84	-	0.01
Wood Stoves	139.45	21.88	1,117.45	3.65	182.29
Fireplaces	597.01	6.78	658.53	1.04	90.20
Landscaping - No winter emissions					
Consumer Prdcts	26.08	-	-	-	-
TOTALS(lbs/day,unmitigated)	763.05	35.33	1,778.83	4.69	272.51

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	31.98	56.08	391.57	0.27	47.82
TOTAL EMISSIONS (lbs/day)	31.98	56.08	391.57	0.27	47.82

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 40 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	5.54 trips / dwelling units	533.00	2,952.82

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.70	1.10	98.70	0.20
Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Area

Changes made to the default values for Operations

The operational emission year changed from 2004 to 2010.
The operational winter selection item changed from 2 to 1.
The operational summer temperature changed from 60 to 70.
The travel mode environment settings changed from both to: none

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\forestex.urb
Project Name: Forest Ranch Existing Zoning
Project Location: Mountain Counties and Rural Counties
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.52	6.68	2.84	-	0.01
Wood Stoves - No summer emissions					
Fireplaces - No summer emissions					
Landscaping	0.75	0.09	6.50	0.20	0.01
Consumer Prdcts	26.08	-	-	-	-
TOTALS(lbs/day,unmitigated)	27.34	6.76	9.34	0.20	0.03

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing	24.88	42.14	317.68	0.27	47.82
TOTAL EMISSIONS (lbs/day)	24.88	42.14	317.68	0.27	47.82

Does not include correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 70 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	5.54 trips / dwelling units	533.00	2,952.82

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.70	1.10	98.70	0.20
Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Area

Changes made to the default values for Operations

The operational emission year changed from 2004 to 2010.
The operational winter selection item changed from 2 to 1.
The operational summer temperature changed from 60 to 70.
The travel mode environment settings changed from both to: none

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\forestranch.urb
Project Name: Forest Ranch Project
Project Location: Mountain Counties and Rural Counties
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

*** 2005 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	87.22	723.16	613.98	0.02	233.71	33.63	200.08
TOTALS (lbs/day, mitigated)	87.22	723.16	613.98	0.02	87.49	33.63	53.86

*** 2006 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	961.99	585.38	807.82	0.28	30.51	25.27	5.24
TOTALS (lbs/day, mitigated)	961.99	585.38	807.82	0.28	30.51	25.27	5.24

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	119.07	29.51	43.52	0.87	0.12

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	121.80	200.06	1,476.12	1.25	125.19

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	240.87	229.57	1,519.64	2.12	125.31

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\forestranch.urb
Project Name: Forest Ranch Project
Project Location: Mountain Counties and Rural Counties
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Winter)

CONSTRUCTION EMISSION ESTIMATES

*** 2005 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	87.22	723.16	613.98	0.02	233.71	33.63	200.08
TOTALS (lbs/day, mitigated)	87.22	723.16	613.98	0.02	87.49	33.63	53.86

*** 2006 ***	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
TOTALS (lbs/day,unmitigated)	961.99	585.38	807.82	0.28	30.51	25.27	5.24
TOTALS (lbs/day, mitigated)	961.99	585.38	807.82	0.28	30.51	25.27	5.24

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	3,311.35	153.45	7,719.43	20.35	1,182.57

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	152.53	240.78	1,769.39	1.25	125.19

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	3,463.87	394.23	9,488.82	21.60	1,307.77

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\forestranch.urb
Project Name: Forest Ranch Project
Project Location: Mountain Counties and Rural Counties
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Winter)

Construction Start Month and Year: June, 2005
Construction Duration: 12
Total Land Use Area to be Developed: 10 acres
Maximum Acreage Disturbed Per Day: 20 acres
Single Family Units: 2313 Multi-Family Units: 0
Retail/Office/Institutional/Industrial Square Footage: 19000

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2005***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	200.00	-	200.00
Off-Road Diesel	86.14	720.97	590.04	-	33.59	33.59	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	1.08	2.19	23.94	0.01	0.12	0.04	0.08
Maximum lbs/day	87.22	723.16	613.98	0.01	233.71	33.63	200.08
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	56.25	455.48	396.97	-	20.94	20.94	0.00
Bldg Const Worker Trips	11.63	6.89	146.58	0.02	2.70	0.10	2.60
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	67.88	462.37	543.54	0.02	23.65	21.05	2.60
Max lbs/day all phases	87.22	723.16	613.98	0.02	233.71	33.63	200.08
*** 2006***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	56.25	436.37	410.24	-	19.75	19.75	0.00
Bldg Const Worker Trips	10.95	6.58	139.14	0.02	2.71	0.11	2.60
Arch Coatings Off-Gas	862.25	-	-	-	-	-	-
Arch Coatings Worker Trips	10.37	5.39	117.30	0.01	2.71	0.11	2.60
Asphalt Off-Gas	2.76	-	-	-	-	-	-
Asphalt Off-Road Diesel	19.00	121.22	158.64	-	4.92	4.92	0.00
Asphalt On-Road Diesel	0.89	16.96	3.29	0.26	0.40	0.38	0.02
Asphalt Worker Trips	0.09	0.05	1.05	0.00	0.02	0.00	0.02
Maximum lbs/day	961.99	585.38	807.82	0.28	30.51	25.27	5.24
Max lbs/day all phases	961.99	585.38	807.82	0.28	30.51	25.27	5.24

Phase 1 - Demolition Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '05
Phase 2 Duration: 1.3 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
20	Rubber Tired Dozers	352	0.590	8.0
20	Tractor/Loaders/Backhoes	79	0.465	8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Jul '05
Phase 3 Duration: 10.7 months
Start Month/Year for SubPhase Building: Jul '05
SubPhase Building Duration: 10.7 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
9	Concrete/Industrial saws	84	0.730	8.0
19	Other Equipment	190	0.620	8.0
9	Rough Terrain Forklifts	94	0.475	8.0

Start Month/Year for SubPhase Architectural Coatings: Apr '06
SubPhase Architectural Coatings Duration: 1.1 months
Start Month/Year for SubPhase Asphalt: May '06
SubPhase Asphalt Duration: 0.5 months
Acres to be Paved: 11.6
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
2	Graders	174	0.575	8.0
2	Off Highway Trucks	417	0.490	8.0
2	Pavers	132	0.590	8.0
2	Paving Equipment	111	0.530	8.0
4	Rollers	114	0.430	8.0

AREA SOURCE EMISSION ESTIMATES (Winter Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	2.25	29.11	12.38	-	0.06
Wood Stoves	605.17	94.93	4,849.29	15.82	791.07
Fireplaces	2,590.77	29.41	2,857.76	4.53	391.44
Landscaping - No winter emissions					
Consumer Prdcts	113.16	-	-	-	-
TOTALS(lbs/day,unmitigated)	3,311.35	153.45	7,719.43	20.35	1,182.57

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing/Tow	48.90	77.49	567.85	0.40	40.39
Recreational Vehicle Park	5.73	9.08	66.53	0.05	4.73
Retirement community	85.99	136.27	998.62	0.71	71.03
Golf Course	6.05	9.63	72.34	0.05	4.89
Office/Professional	1.95	2.97	22.03	0.02	1.53
Medical/Dental	3.91	5.35	42.02	0.03	2.63
TOTAL EMISSIONS (lbs/day)	152.53	240.78	1,769.39	1.25	125.19

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2004 Temperature (F): 40 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing/Tow	5.54 trips / dwelling units	513.00	2,842.02
Recreational Vehicle Park	3.33 trips / dwelling units	100.00	333.00
Retirement community	2.94 trips / dwelling units	1,700.00	4,998.00
Golf Course	28.60 trips / hole	18.00	514.80
Office/Professional	26.60 trips / 1000 sq. ft.	5.00	133.00
Medical/Dental	25.50 trips / 1000 sq. ft.	14.00	357.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	56.10	2.70	96.80	0.50
Light Truck < 3,750 lbs	15.10	4.60	92.70	2.70
Light Truck 3,751- 5,750	15.60	2.60	96.20	1.20
Med Truck 5,751- 8,500	6.90	2.90	94.20	2.90
Lite-Heavy 8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	10.00	20.00	70.00
Heavy-Heavy 33,001-60,000	0.80	0.00	12.50	87.50
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.10	0.00	0.00	100.00
Motorcycle	1.60	87.50	12.50	0.00
School Bus	0.20	0.00	0.00	100.00
Motor Home	1.30	15.40	76.90	7.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
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)						
Golf Course				2.0	1.0	97.0
Office/Professional				35.0	17.5	47.5
Medical/Dental				7.0	3.5	89.5

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Construction

Architectural Coatings: paint thickness (mils) (residential) changed from 1 to .1
Architectural Coatings: paint thickness (mils) (non-res) changed from 1 to .1
Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
has been changed from off to on.
Phase 2 mitigation measure Unpaved Roads: Water all haul roads 2x daily
has been changed from off to on.
Phase 2 mitigation measure Unpaved Roads: Reduce speed on unpaved roads to < 15 mph
has been changed from off to on.

Changes made to the default values for Area

Changes made to the default values for Operations

The pass by trips option switch changed from off to on.
The double counting internal work trip limit changed from to 81.836.
The double counting shopping trip limit changed from to 40.918.
The double counting other trip limit changed from to 882.046.
The travel mode environment settings changed from both to: both

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\forestranch.urb
Project Name: Forest Ranch Project
Project Location: Mountain Counties and Rural Counties
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

Construction Start Month and Year: June, 2005
Construction Duration: 12
Total Land Use Area to be Developed: 10 acres
Maximum Acreage Disturbed Per Day: 20 acres
Single Family Units: 2313 Multi-Family Units: 0
Retail/Office/Institutional/Industrial Square Footage: 19000

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2005***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	200.00	-	200.00
Off-Road Diesel	86.14	720.97	590.04	-	33.59	33.59	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	1.08	2.19	23.94	0.01	0.12	0.04	0.08
Maximum lbs/day	87.22	723.16	613.98	0.01	233.71	33.63	200.08
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	56.25	455.48	396.97	-	20.94	20.94	0.00
Bldg Const Worker Trips	11.63	6.89	146.58	0.02	2.70	0.10	2.60
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	67.88	462.37	543.54	0.02	23.65	21.05	2.60
Max lbs/day all phases	87.22	723.16	613.98	0.02	233.71	33.63	200.08
*** 2006***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	56.25	436.37	410.24	-	19.75	19.75	0.00
Bldg Const Worker Trips	10.95	6.58	139.14	0.02	2.71	0.11	2.60
Arch Coatings Off-Gas	862.25	-	-	-	-	-	-
Arch Coatings Worker Trips	10.37	5.39	117.30	0.01	2.71	0.11	2.60
Asphalt Off-Gas	2.76	-	-	-	-	-	-
Asphalt Off-Road Diesel	19.00	121.22	158.64	-	4.92	4.92	0.00
Asphalt On-Road Diesel	0.89	16.96	3.29	0.26	0.40	0.38	0.02
Asphalt Worker Trips	0.09	0.05	1.05	0.00	0.02	0.00	0.02
Maximum lbs/day	961.99	585.38	807.82	0.28	30.51	25.27	5.24
Max lbs/day all phases	961.99	585.38	807.82	0.28	30.51	25.27	5.24

Phase 1 - Demolition Assumptions: Phase Turned OFF

Phase 2 - Site Grading Assumptions
Start Month/Year for Phase 2: Jun '05
Phase 2 Duration: 1.3 months
On-Road Truck Travel (VMT): 0
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
20	Rubber Tired Dozers	352	0.590	8.0
20	Tractor/Loaders/Backhoes	79	0.465	8.0

Phase 3 - Building Construction Assumptions
Start Month/Year for Phase 3: Jul '05
Phase 3 Duration: 10.7 months
Start Month/Year for SubPhase Building: Jul '05
SubPhase Building Duration: 10.7 months
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
9	Concrete/Industrial saws	84	0.730	8.0
19	Other Equipment	190	0.620	8.0
9	Rough Terrain Forklifts	94	0.475	8.0

Start Month/Year for SubPhase Architectural Coatings: Apr '06
SubPhase Architectural Coatings Duration: 1.1 months
Start Month/Year for SubPhase Asphalt: May '06
SubPhase Asphalt Duration: 0.5 months
Acres to be Paved: 11.6
Off-Road Equipment

No.	Type	Horsepower	Load Factor	Hours/Day
2	Graders	174	0.575	8.0
2	Off Highway Trucks	417	0.490	8.0
2	Pavers	132	0.590	8.0
2	Paving Equipment	111	0.530	8.0
4	Rollers	114	0.430	8.0

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	2.25	29.11	12.38	-	0.06
Wood Stoves - No summer emissions					
Fireplaces - No summer emissions					
Landscaping	3.67	0.40	31.13	0.87	0.06
Consumer Prdcts	113.16	-	-	-	-
TOTALS(lbs/day,unmitigated)	119.07	29.51	43.52	0.87	0.12

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single family housing/Tow	38.55	64.37	474.72	0.40	40.39
Recreational Vehicle Park	4.59	7.54	55.62	0.05	4.73
Retirement community	69.25	113.20	834.85	0.71	71.03
Golf Course	4.81	8.02	58.82	0.05	4.89
Office/Professional	1.52	2.47	18.26	0.02	1.53
Medical/Dental	3.07	4.46	33.84	0.03	2.63
TOTAL EMISSIONS (lbs/day)	121.80	200.06	1,476.12	1.25	125.19

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2004 Temperature (F): 60 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing/Tow	5.54 trips / dwelling units	513.00	2,842.02
Recreational Vehicle Park	3.33 trips / dwelling units	100.00	333.00
Retirement community	2.94 trips / dwelling units	1,700.00	4,998.00
Golf Course	28.60 trips / hole	18.00	514.80
Office/Professional	26.60 trips / 1000 sq. ft.	5.00	133.00
Medical/Dental	25.50 trips / 1000 sq. ft.	14.00	357.00

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	56.10	2.70	96.80	0.50
Light Truck < 3,750 lbs	15.10	4.60	92.70	2.70
Light Truck 3,751- 5,750	15.60	2.60	96.20	1.20
Med Truck 5,751- 8,500	6.90	2.90	94.20	2.90
Lite-Heavy 8,501-10,000	1.00	0.00	80.00	20.00
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	10.00	20.00	70.00
Heavy-Heavy 33,001-60,000	0.80	0.00	12.50	87.50
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.10	0.00	0.00	100.00
Motorcycle	1.60	87.50	12.50	0.00
School Bus	0.20	0.00	0.00	100.00
Motor Home	1.30	15.40	76.90	7.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
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)						
Golf Course				2.0	1.0	97.0
Office/Professional				35.0	17.5	47.5
Medical/Dental				7.0	3.5	89.5

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Construction

Architectural Coatings: paint thickness (mils) (residential) changed from 1 to .1
Architectural Coatings: paint thickness (mils) (non-res) changed from 1 to .1
Phase 2 mitigation measure Soil Disturbance: Apply soil stabilizers to inactive areas
has been changed from off to on.
Phase 2 mitigation measure Soil Disturbance: Water exposed surfaces - 2x daily
has been changed from off to on.
Phase 2 mitigation measure Unpaved Roads: Water all haul roads 2x daily
has been changed from off to on.
Phase 2 mitigation measure Unpaved Roads: Reduce speed on unpaved roads to < 15 mph
has been changed from off to on.

Changes made to the default values for Area

Changes made to the default values for Operations

The pass by trips option switch changed from off to on.
The double counting internal work trip limit changed from to 81.836.
The double counting shopping trip limit changed from to 40.918.
The double counting other trip limit changed from to 882.046.
The travel mode environment settings changed from both to: both

Appendix F

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

GUIDELINES FOR WASTE DISPOSAL FROM LAND DEVELOPMENTS *

In its June 1971 Interim Water Quality Control Plan, the Board included Guidelines for Land Development Planning. These Guidelines were substantially modified on the 15 December 1972 and re-titled *Guidelines for Waste Disposal From Land Developments*. The *Guidelines* that follow are substantially the same as those adopted in 1972 but contain changes based upon experience gained from working closely with local governmental agencies in the development of individual waste disposal ordinances.

Section 13260 of the Porter-Cologne Water Quality Control Act requires any person discharging waste or proposing to discharge waste to file a report of the discharge containing such information as may be required by the Board. In the early 1950's, the Board waived the filing of reports for dischargers from individual sewage disposal systems in those counties having satisfactory ordinances of regulations. Traditionally, these individual discharges have been treated by septic tank-leaching systems.

The Water Quality Control Act requires local governmental agencies to notify the Board of the filing of tentative subdivision maps of applications for building permits involving six or more family units except where the waste is discharged to a community sewer system.

The Board believes that control of individual waste treatment and disposal system can best be accomplished by local County Environmental Health Departments if these departments are strictly enforcing an ordinance that is designed to provide complete protection to ground and surface waters and to the public health.

The following principals and policies will be applied by the Board in review of water quality factors related to land developments and waste disposal from septic tank-leaching systems:

1. There are great differences in the geology, hydrology, geography, and metrology of the 40 counties, which lie partially or wholly within the Central Valley. The criteria contained herein are considered to be applied to the Central Valley and pertain to: (a) all tentative maps filed after 15 December 1972, (b) all subdivisions of land made after 15 December 1972, and (c) all final maps for which tentative maps were filed prior to 15 December 1971. Local agencies and the Board may adopt and enforce more stringent regulations, which recognize particular local conditions that may be limiting to wastewater treatment and disposal.

2 The Board does not intend to preempt local authority and will support local authority to the fullest extent possible. Where local authority demonstrates the inability or unwillingness to

* Excerpt from the Water Quality Control Plan (Basin Plan), Sacramento River Basin (5A), Sacramento-San Joaquin Delta Basin (5B), San Joaquin Basin (5C), and Tulare Lake Basin (5D), adopted by the Regional Board on 25 July 1975.

adopt an ordinance compatible with these guidelines, the Board intends to withdraw its waiver concerning waste disposal from individual systems and will require each and every party proposing to discharge waste within that county to submit a Report of Waste Discharge as required by Section 13260 of the Porter-Cologne Water Quality Act.

3 Evaluation of the capability of individual waste treatment systems to achieve continuous safe disposal of waste requires detailed local knowledge of the area involved. The experience and recommendations of local agencies will, therefore, be an important input to the information upon which the Board will base its decision.

4 There are many areas within the Central Valley that are not conducive to individual waste treatment and disposal systems. In these areas, connection to an adequate community sewerage system is the most satisfactory method of disposing of sewage. The Board believes that individual disposal systems should not be used where community system are available and that every effort should be made to secure public sewer extensions, particularly in urban areas. Where connection to a public sewer is not feasible and a number of residences are to be served, due consideration should be given to construction of a community sewage treatment and disposal system.

5 The installation of individual disposal system, especially in large numbers, creates discrete discharges which must be considered on an individual basis. The life of such disposal system may be quite limited. Failures, once they begin in an area, generally will occur on an area wide basis. Further, regular maintenance is important to successful operation of individual disposal systems. To assure continued protection of water quality, to prevent water pollution and to avoid the creation of public health hazards and nuisance conditions, a public entity [1] shall be formed with powers and responsibilities defined herein for all subdivisions having 100 lots or more. Subdivisions with less than 100 lots, which threaten to cause water quality or public health problems, will also be required to form a public entity.

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[1] Public Entity – A local agency, as defined in the State of California Government Section 53090 et seq., which is empowered to plan, design, finance, construct, operate, maintain, and to abandon, if necessary, any sewerage system or the expansion of any sewerage system and sewage treatment facilities serving a land development. In addition, the entity shall be empowered to provide permits and to have supervision over the location, design, construction, operation, maintenance, and abandonment of individual sewage disposal systems within a land development, and shall be empowered to design, finance, construct, operate, and maintain any facilities necessary for the disposal of wastes pumped from individual sewage disposal systems and to conduct any monitoring or surveillance programs required for water quality control purposes. (Unless there is an existing public entity performing these tasks.)

CRITERIA FOR SEPTIC TANK – LEACHING SYSTEMS

The following criteria will be applied to assure continued preservation and enhancement of state waters for all present and anticipated beneficial uses, prevention of water pollution, health hazards, and nuisance conditions. These criteria prescribe conditions for waste disposals from septic tank-leaching systems for single-family residential units or the equivalent and do not preclude the establishment of more stringent criteria by local agencies of the Board. The Board may prohibit the discharge from septic tank-leaching systems, which do not conform to these criteria. Systems, which cannot meet the following criteria, may be allowed in selected areas if they are individually designed. The criteria may not be applicable in all cases to commercial or industrial developments.

The septic tank, absorption systems, and disposal area requirements for other than single-family residential units shall be based upon the current edition of the *Manual of Septic Tank Practice* or in accordance with methods approved by the Executive Officer. An adequate replacement area equivalent to at least the initial disposal area shall be required at the time of design of the initial installation and incompatible uses of the replacement area shall be prohibited.

Minimum Distances

The Board has determined the following minimum distances (in feet) should be followed in order to provide protection to water quality and/or public health:

Facility	Domestic Well	Public Well	Flowing Stream[1]	Drainage Course or Ephemeral Stream[2]	Cut or Fill Bank[3]	Property Line[4]	Lake or Reservoir[5]
Septic tank or sewer line	50	100	50	25	10	25	50
Leaching Field	100	100	100	50	4h	50	200
Seepage Pit	150	150	150	50	4h	75	200

[1] As measured from the line, which defines the limit of a 10-year frequency flood.
[2] As measured from the edge of the drainage course or stream
[3] Distance in feet equals four times the vertical height of the cut or fill bank. Distance is measure from the top of the bank.
[4] This distance shall be maintained when individual wells are to be installed and the minimum distance between waste disposal and wells cannot be assured.
[5] As measured from the high water line.

Minimum Criteria

1. The percolation rate[2/] in the disposal area shall not be slower that 60 minutes per inch, or not slower than 30 minutes per inch if seepage pits are proposed. The percolation rate shall not be faster than five minutes per inch unless it can be shown that a sufficient distance of soil is available to assure proper filtration.

2. Soil depth below the bottom of a leaching trench shall not be less than five feet, nor less than 10 feet below the bottom of a seepage pit.

3. Depth to anticipated highest level of groundwater below the bottom of a leaching trench shall not be less than five feet, nor less than 10 feet below the bottom of a seepage pit. Greater depths are required if soils do not provide adequate filtration.

4. Ground slope in the disposal area shall not be greater than 30 percent.

5. The minimum disposal area shall conform to the following:

Percolation Rate (minutes/inch)	Minimum Usable Disposal Area (sq ft)
41-60	12,000
21-40	10,000
11-20	8,000
Less than 10	6,000

6. Areas that are within the minimum distances, which are necessary to provide protection to water quality and/or public health, shall not be used for waste disposal. The following area are also considered unsuitable for the location of disposal systems or replacement areas:

   a. Areas within any easement, which is dedicated for surface or subsurface improvement.

   b. Paved areas.

   c. Areas not owned or controlled by property owners unless said area is dedicated for waste disposal purposes.

   d. Areas occupied or to be occupied by structures.

[2/] Determined in accordance with procedures contained in current U.S. Department of Health, Education, and Welfare *Manual of Septic Tank Practice* or a method approved by the Executive Officer.

Implementation

1. The Board will review local ordinances for the control of individual waste disposal systems and will request local agencies to adopt criteria, which are compatible with or more stringent than these guidelines.

2. In those counties, which have adopted an ordinance compatible with these guidelines, the Board will pursue the following course of action for discharges from individual septic tank-leaching systems.

   a. Land developments consisting of less than 100 lots will be processed entirely by the county. Tentative maps for subdivisions involving six or more family units shall be transmitted to the Board along with sufficient information [3/] to clearly determine that the proposed development will meet the approved county ordinance. The Board along or the appropriate local authority may require a public entity if potential water quality or public health problems are anticipated

   b. Tentative maps for land developments containing100 lots or more shall be transmitted to the Board. The map shall be accompanied by a report of waste discharge and sufficient information to clearly demonstrate that the proposed development will meet these guidelines or the approved county ordinance. A public entity is required prior to any discharge of waste.

3. The Board will prohibit the discharge of wastes from land developments which threaten to cause water pollution, quality degradation, or the creation of health hazards of nuisance conditions. These guidelines will be used to evaluate potential water quality of health problems. In certain locations and under special circumstances the Board's Executive Officer may waive individual criteria or he may waive the formation of a public entity. Land developers are to be aware that a waiver by the Executive Officer is not binding on any location entity.

   Examples of these special circumstances would be:

   a. Short time, interim use of individual septic tank-leaching systems may be acceptable in areas which do not meet these guidelines if sufficient, dependable funding of community collection, treatment, and disposal is demonstrated and a plan and time schedule for implementation is being followed.

[3/] The Board's staff has developed a document entitled *Information Needs for Waste Disposal from Land Developments*. This document discusses the necessary reports, maps, etc., that must be submitted in order to evaluate proposed land developments.

b. A failure to meet the minimum criteria could be negated by other favorable conditions. For example, the installation of individual septic tank-leaching systems may be allowed in areas which cannot meet the minimum criteria in these guidelines if the disposal area is increased sufficiently to allow for special design systems [4/] that have been shown to be effective in similar areas.

4. Severe impact on water quality has resulted from improper storm drainage and erosion control. Land developers must provide plans for the control of such runoff from initial construction up to complete build-out of the development.

5. The disposal of solid waste can have an impact on water quality and public health. Land developers must submit a plan which conforms to the regional or county master plan and contains adequate provisions for solid waste disposal for complete build-out of the development.

6. The disposal of septic tank sludge is an important part of any area wide master plan for waste disposal. Land developers must submit a plan which conforms to the regional or county master plan and contains adequate provisions for solid waste disposal for complete build-out of the development.

7. The responsibility for the timely submittal of information necessary for the board of the appropriate local authority to determine compliance with these guidelines rests with persons submitting proposals for development or discharge. For those development which are to be submitted to the Board, the Porter-Cologne Water Quality Control Act provides that no person shall initiate any new discharges of wastes prior to filing a report of waste discharge and prior to (1) issuance of the waste discharge requirements, (2) the expiration of 120 days after submittal of an adequate report of waste discharge, or (3) the issuance of a waiver by the Regional Board.

8. A report of waste discharge which does not provide the information required by these guidelines is an inadequate report. The 120-day time period does not begin until an adequate report has been submitted. Thus, to avoid extensive delay, every effort should be made to comply with these guidelines at the earliest possible date during formulation of proposals.

[4/] Special design systems will be accepted for review from registered engineers, geologist, or sanitarians who are knowledgeable and experienced in the field of septic tank-leaching system design and installation. These systems will include at least a 100% replacement disposal area. These systems shall be installed under the supervision of the designer, the public entity responsible, and the local health department.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

INFORMATION NEEDS FOR WASTE DISPOSAL FROM LAND DEVELOPMENTS

At a public hearing on 15 December 1972, the California Regional Water Quality Control Board, Central Valley Region, adopted *Guidelines For Waste Disposal From Land Developments*. The Guidelines have been incorporated into the Water Quality Control Plan for the Central Valley.[1] The Guidelines contain a description of how the Board will evaluate waste disposal from land developments especially with regard to the installation of individual septic tank leaching systems.

Contained herein is a description of the information which must be supplied to enable the Board's staff to determine if the proposed development conforms to the Guidelines. The information should be submitted along with the tentative map to the local planning agency. The planning agency will transmit this information and the tentative map to the Regional Board and to the local health department. It is suggested that local planning agencies require the submittal of such information along with a preliminary map to a subdivision review committee prior to submittal of a tentative map.

The following information needs have been developed with regard to developments which propose individual waste disposal systems. Much of this information may also be needed if the developer proposes to build a community collection and treatment system. In such case, the developer must submit a report of waste discharge to the Regional Board.

Existing Conditions

The report must contain sufficient information describing the physical environment of the development to allow the Regional Board to evaluate the effect of waste disposal and associated construction activities on ground and surface waters. It is expected that the developer will make use of locally available data to develop this report. The amount of testing to be done on each subdivision will vary depending on the area involved. In general, the frequency of testing will be left to the discretion of the engineer. Sufficient information must be available to generally categorize the development according to controlling criteria in the Guidelines. Local requirements may require subsequent testing of certain parameters on each lot for purposes of designing treatment and disposal systems.

In certain areas, the Board may waive the submittal of some of the following material. In general, however all items should be considered and those not applicable so noted. The attached form together with the tentative subdivision or land development map and certification will generally suffice.

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[1] The Water Quality Control Plan for the Sacramento River Basin (5A), Sacramento-San Joaquin Delta Basin (5B), San Joaquin River Basin (5C), and the Tulare Lake Basin (5D) was adopted by the Regional Board on 25 July 1975.

Proposed Development Plan

A. Show extent of development including all existing, currently proposed, and contemplated future land developments for area and immediately adjacent areas. If development is to be staged, show extent of each stage and expected time for implementation.

B. If sewage disposal is to be by individual system, provide the following data for each lot as determined by representative testing within the development.

1. Percolation rates (min/in)

    a. Describe and show location of percolation tests.

2. Soils and geology

    a. Show depth of soil to rock or first impervious layer.

    b. Evaluate grain size distribution, organic content, presence of swelling clays, etc.

    c. Show location and extent of all rock outcrops, and if limestone is present, discuss the possibility of solution cavities serving as conduits to carry effluent into water supplies.

    d. Define geological hazards as they relate to waste disposal including degree and nature of fracturing and weathering and discuss the possibility of fractures serving as conduits to carry effluent into water supplies.

    e. Show depth and distribution of impervious layers including slope and direction of these layers.

    f. Present information used to compile soils data (include Soil Conservation Service appraisal where applicable).

3. Slope

    a. Show slope of existing ground surface.

    b. Show location of all cut or fill banks over two feet in height and designate area not available for waste disposal.

4. Available disposal area

    a. Show the total available disposal area that can be reached by gravity for each lot or proposed discharge.

5. Ground water

    a. Show depth to seasonal high groundwater and discuss anticipated and/or historic high level.

b. Indicate direction of movement.

c. Discuss recharge sources and amounts in areas where they may be a problem.

d. Submit data on chemical and/or bacteriological quality.

e. Show location of marshy areas and springs.

f. Show location and identify use of all existing or proposed water wells, including those abandoned, both in development and on adjoining properties within 100 feet of development boundaries, and show areas not available for waste disposal.

6. Surface waters

a. Show location and extent of all flowing streams, drainage courses, ephemeral streams, canals, lakes, and reservoirs.

b. Discuss relationship to groundwater.

c. Discuss any flood hazards.

7. Climate

a. Describe annual precipitation showing storm and seasonal precipitation.

b. Describe evapotranspiration rates and show seasonal distribution.

Master Plan for Waste Disposal

Discuss plans for handling both liquid and solid wastes and the resulting impact on water quality at all stages of development.

1. Liquid Waste

a. Identify flows and characteristics of sewage and industrial wastes.

b. Discuss the changes in water quality that may be expected to occur as a result of waste discharges.

c. If individual systems are to be used, indicate why existing community systems were not used or why such a system was not constructed.

d. If installation of a community system is proposed at a later date, show that system can be economically installed, provide evidence of capability to finance and construct such a system.

e. Discuss the public entity and indicate maintenance and operation schedules of the individual system.

f. Show how disposal of septic tank pumpings will be accomplished.

2. Solid Waste

   a. Identify expected solid waste volumes and point of disposal.

   b. Discuss how, and by whom, the waste will be transported to the disposal site.

   c. If disposal is to an existing site, indicate that solid waste from the development will be accepted at the site, provide information on capability of the site to accommodate wastes and discuss the effect upon the life of the site.

Storm Drainage and Erosion Control Plan

A storm drainage and erosion control plan must be submitted with the tentative map which indicates:

1. Expected volumes, peak rates, characteristics, and other pertinent information concerning storm water runoff and dry weather drainage from both construction and ultimate development phases.

2. Adequate collection and treatment systems are, or will be, available as necessary to protect the water environment from any adverse effects.

3. Stabilization and/or erosion control of all cuts, fills, and other excavations or gradings by planting, raprapping, of other effective means that will prevent erosion.

4. Installation of adequate storm drainage facilities which will minimize the amount of silt, sand, and debris discharged to area receiving waters.

5. Stabilization of all storm water runoff channels by the installation of culverts, ripraps, or other effective means that will prevent erosion.

6. Scheduling of work so as to minimize erosion from weather conditions and the stabilization of work in progress against inclement weather conditions.

The Regional Board will prescribe requirements when necessary pertaining to waste discharges from land development or other construction and earth moving operations located in areas having a high potential for soil erosion and resultant siltation problems affecting water quality and water use.

Certification

The engineer or person in direct responsible charge and the person or corporation possessing ownership of the proposed development shall provide the following certification:

I hereby certify to the best of my belief that the land development known as_____

_____

has been designed in accordance with *Guidelines* established by the California Regional Water Quality Control Board, Central Valley Region, on 25 July 1975.

_____
Registered Civil Engineer

Certification No. _____

Date _____

I hereby certify to the best of my belief that any restrictions, requirements, or orders of the California Regional Water Quality Control Board, Central Valley Region, shall be made a part of the deeds, covenants, and restrictions for each lot sold in the land development known as _____

_____.

_____
Name

_____
Title

_____
Company

_____
Date

DEFINITIONS OF TERMS USED IN GUIDELINES

Abandoned Well

A well whose original purpose and use has been permanently discontinued or which is in such a state of disrepair that it cannot be used for its original purpose. If an abandoned well has been properly destroyed so that it will not produce water nor act as a conduit for the movement of water, it will not be subject to minimum criteria in the Guidelines

Community Sewerage System

A piped collection system which delivers sanitary wastes from a number of dwelling, business, commercial, etc., units to one or more wastewater treatment plants. The community sewerage system is normally under the jurisdiction of a public entity and operates under waste discharge requirements issued by the Regional Board.

Disposal Area

The area to be used for installation of leaching systems (normally trenches or seepage pits) from septic tanks.

Drainage Course

A depression in the ground surface that normally carries water only during and shortly after a rainfall.

Ephemeral Stream

A stream which has a surface flow of water only for a limited period of time.

Flowing Stream

A stream which maintains a surface flow during all or most of the year.

Ground Water

The water in the zone of saturation.

Impervious Layer

A bed or lens of fine grained soil or cemented material that retards the downward movement of fluids.

Individual Disposal System

A collection system and wastewater treatment and disposal facility for individual dwellings, business, commercial, etc., units. Normally septic tanks - leaching systems used for individual disposal.

Minimum Usable Disposal Area

The minimum area that must be available on a lot to dispose of waste from septic tank – leaching systems.

Porosity

Percentage of voids in the dry material.

Report of Waste Discharge

A Report required under Section 13260 of the Porter-Cologne Water Quality Control Act.

Rock

Cemented or compacted sediments or crystalline material having a porosity of less than 15%.

Soil

Granular or weathered material having a porosity greater that 15%.

REPORT TO REGIONAL BOARD

CONCERNING LAND DIVISIONS NOT TO BE SERVED BY A SEWERAGE SYSTEM

I. Subdivision Name

a. Location to nearest ¼ section:

b. Owner: _____

Address: _____

Telephone: _____

II. Date of Submittal: _____

III. Acres in Subdivision _____; Number of parcels or lots _____;

Smallest parcel or lot size _____.

IV. Adjacent Subdivision Information

Tract or Parcel Map No.	Date Submitted to Local Advisory Agency	No. of Parcels or Lots	Smallest Parcel or Lot Size
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

V. Soil Conditions

a. Percolation Rates (Min/in) No. Tests Performed _____

Maximum _____ Minimum _____ Average _____

b. Soil Type (Unified and U.P.C., or texture description)

Average Condition _____; Extreme Condtion _____

c. Test Hole Depths (ft.) Max. _____ Min. _____ Average _____

Were restrictive barriers encountered in any test holes? Yes _____ No _____

d. Slope (%) in Disposal Area Max. _____ Min. _____ Avg. _____

e. Type of Proposed Disposal System: Pits _____; Trenches _____; Other _____.

VI. Ground Water

a. Depth to ground water within the area (ft.) _____.

b. Source of supply water – Individual Wells _____;

Water Company Name _____.

VII. General Remarks

a. What is the distance to an existing or proposed public or community sewerage facility in area:

Distance: _____ Existing: _____ Proposed: _____

b. Are there any unique conditions associated with this development which may affect water quality?

Explain: _____

_____

_____

VIII. Certification

County Concurrence

To the best of my knowledge, the foregoing information is an accurate and complete evaluation of this land division map number _____.

By: _____

Title: _____

Agency: _____

Date: _____

Regional Board Response is necessary by (date) _____.

_____

_____

Recommended Approval: _____

Additional information requested (form incomplete): _____

Complete subdivision information submittal is necessary: _____

By: _____

Title: _____ Date: _____

Appendix G

FOREST RANCH PROGRAMATIC EIR
HERITAGE RESOURCE STUDY
FORESTHILL, CALIFORNIA

BY

SUSAN LINDSTRöM, PH.D.
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P.O. BOX 3324
TRUCKEE, CALIFORNIA 96160

PREPARED FOR

QUAD KNOPF
ONE SIERRAGATE PLAZA, SUITE 270C
ROSEVILLE, CALIFORNIA 95678

AUGUST 4, 2002

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FIGURES

1. Project vicinity map
2. Project location map
3. Project site plan
4. Prior archaeological coverage

CORRESPONDENCE

Native American Heritage Commission

CONFIDENTIAL APPENDIX

Heritage Resource Location Map

PROJECT LOCATION, DESCRIPTION AND SCOPE

The Forest Ranch project is a planned residential and recreational development on 2615 acres located north and east of the Community of Foresthill, Placer County (Figure 1). It falls within Township 14 North, Range 11 East, Section 30 and Township 14 North, Range 10 East, sections 22-27 and 34-35, Foresthill 7.5 Quadrangle M.D.M. (Figure 2). It is the intent of the county and the applicant that the EIR be prepared in somewhat parallel fashion with the EIR for the Foresthill Community Plan Update and presented as an alternative to adoption of the Community Plan as proposed. With the adoption of the proposed General Plan amendment and rezoning requests, the Forest Ranch project includes the following elements: 2213 residential units; an 18-hole golf course and associated recreational facilities; five acres for office and professional use; a 100-unit recreational vehicle park; and equestrian center. Approximately 1128 acres (43% of the project area) is set aside as open space to protect sensitive habitats and slopes and to provide project buffering. Major infrastructure improvements involve a wastewater treatment facility, water system, and road improvements (Figure 3).

At this programmatic level of the EIR, information gathered for the heritage resource component is non-specific and limited to a records search of the existing archaeological inventory and initial contact and consultation with members of the local Native American community, the historical society and heritage personal with the Tahoe National Forest Foresthill Ranger District. Archaeological fieldwork was limited to a cursory drive through the project area in the company of the project sponsor, president of the Foresthill Divide Historical Society, and members of the Todd Valley Maidu-Miwok Cultural Foundation. No archaeological field reconnaissance was conducted.

SETTING

A discussion of the physical and cultural background of the Forest Ranch project area is excerpted from the overview provided by Lindström (2000) for the Foresthill Community Plan project. Lindström's overview draws heavily from contexts presented in the "Historical, Architectural, and Archaeological Resources of Placer County, California (Terhorst and Gerike 1992) and in work by Baker (2000), Baker and Shoup (1992), and Baker, Shoup and Brack (1993) associated with the Highway 124 Project. Further information is taken from Carlson's (1986) ethnographic overview and Markley and Henton's (1985) prehistoric overview of the Tahoe National Forest. Details regarding the physical and cultural setting of the Foresthill Divide are found in these sources and will not be repeated here in the text or in the references cited section.

PHYSICAL SETTING

The Forest Ranch project is located on the Foresthill Divide, a long northeast-trending ridge system separating the North and Middle Forks of the American River. As one of the major east-west ridge systems of the north-central Sierra Nevada, the Divide would have provided relatively easy access for prehistoric populations moving east and west over the crest. However, the steep canyons and rugged terrain to the north and south of the Divide may

have been a barrier to travel and trade. Prehistoric ridge top village sites may have been preferable to village locales along streams. Ridges were also the preferred locales for Euroamerican settlements and ranchlands.

The rocks underlying the Divide are part of the Mother Lode Belt and include slates and shales of the Mariposa Formation. The flat ridge of the Foresthill Divide is formed by a complex system of Tertiary channels capped by lavas that are included within the Mehrten Formation and categorized as andesite mud-flows. The underlying ancient Tertiary river channels contain auriferous deposits that were the focus of hydraulic and drift mining for gold by incoming Euroamericans. The complex geology of the Foresthill Divide region also provided a variety of stone for prehistoric tool manufacture, including slate and schist, chert, and igneous and metamorphic materials.

The Mediterranean climate of the Foresthill Divide is characterized by hot summers and cool winters, with most precipitation falling during the winter as rain. The North and Middle Forks of the American River form the major hydrological features; fresh water sources are relatively abundant on top of the Divide. Rivers cut steep canyons up to 1000 feet below the top of the Divide that presented major obstacles for both prehistoric and historic populations traveling off of the Divide.

The project area spans an elevation range roughly between 2500 and 3400 feet and encompasses several major life zones that gradually change with increasing altitude. Mountain ridges are colonized by mixed forests, oaks, shrubs, grasslands, and meadows--habitat for diverse faunal resources. The rich array of plants and animals were of subsistence and economic importance to both aboriginal inhabitants and incoming Euroamericans.

PREHISTORY AND THE NATIVE AMERICAN PERIOD

Clear boundary determinations for Native American residents along the Foresthill Divide are confounded by the complete disruption of aboriginal cultures by early Euroamericans and of traditional practices involving inter-group trade, politics, marriage, and ritual. The Foresthill Divide lies firmly within the traditional territory of the Hill Nisenan (or Southern Maidu), a Penutian speaking group that inhabited the west-central Sierra Nevada. (Beales 1933; Levey 1978; Littlejohn 1928). After historic contact, Northern Miwok, also Penutian speakers, may have resided here; Northern Miwok currently live on the Divide. The Hill Nisenan held territory in the foothill and mountainous portions of the Yuba, Bear and American rivers, and the lower drainages of the Feather River. The Hill Nisenan recognized three divisions within their group based on slight linguistic and cultural differences. The Foresthill people belonged to one of the subgroups with its "center of influence" at Auburn.

Environmental phenomena such as springs and drainages, unique geological outcrops, and different land surface exposures with variable slopes created extreme variety in the accompanying plant and animal communities upon which aboriginal populations depended. Like most hunters and gatherers, vegetable foods formed the subsistence baseline, although they used a wide range of plant and animal species. Generally, the least productive time of

the year for the Hill Nisenan was late winter-early spring. Hill Nisenan caught salmon during spring runs up the North and Middle Forks of the American Rivers and their tributaries. Throughout the summer, groups gathered nuts and seeds, roots, berries, fungi, and greens. Expeditions to hunt large game took place within the higher elevations during the fall. Acorns became available in massive quantities in the autumn. Acorn eating is the hallmark of California Indians and they were the primary staple for those groups who inhabited the western foothills of the Sierra.

Areas encompassed by the project area were occupied on a permanent or semi-permanent basis, with higher elevations being inhabited at various times of the year by smaller groups that made seasonal movements in order to procure economic resources as they became available. Villages were usually placed on ridge tops and on large flats along major streams. Permanent villages are represented archaeologically by culturally enriched and darkened soils (or "midden") which contain artifacts, charcoal, organic debris, and/or house pit and dance house depressions. Villages hosted important social gatherings and religious ceremonies. Dances to celebrate seasonal events and honor ancestors and deities were held in large semi-subterranean roundhouses. (The Todd Valley Miwok-Maidu Cultural Foundation is currently constructing a new roundhouse near Foresthill.) Hill Nisenan villages consisted of from four to 12 separate dwellings, housing a nuclear or polygamous family. Larger social organizations, called "tribelets", were formed by several villages uniting under a single chief. Triblet boundaries were marked by natural ridges between streams.

Land use patterns, known from Nisenan protohistoric times, are generally consistent with interpretations derived from numerous archaeological investigations within the Placer County (and a few excavations on the Foresthill Divide). The archaeological record indicates a shift from sparsely populated hunting-based societies in earlier times to growing populations with increasing reliance on plant foods by the time of historic contact. Also, paleoclimates may have been warmer and drier in the past, allowing for year-round occupation of the higher elevations. Occupation along the Divide may extend earlier than 5000 years ago and continue up to the time of historic contact. Between about 7000 and 5000 years ago, during the Early Archaic Period, climates were warmer and drier and drying lowlands may have prompted human populations to travel to upland resource zones where prehistoric economies incorporated seed processing and fishing, as well as hunting. During the Middle Archaic period, dating from about 5000 to 1300 years ago, climates became moister and, with a return to more optimal living conditions, population densities increased. More intensive prehistoric use of the Foresthill Divide by mixed-mode foragers/collectors began during this period. The Late Archaic period, about 1300 years ago to historic contact, has been equated with the Nisenan culture, as described in ethnographic accounts written by early anthropologists. This period is marked by an overall drying trend, with cool and moist episodes alternating with extended severe drought. Throughout the Lake Archaic, prehistoric populations continued to increase.

The largest available body of ethnographic data on the Nisenan was collected between the 1890s to the 1930s. Most of this information was gathered after aboriginal populations had been substantially reduced and the process of acculturation was well underway. Nisenan

territory encompassed the heartland of one of the most important mineral resource zones in the western United States, the Sierra Nevada Mother Lode. By the 1850s Euroamericans had permanently occupied their territory and changed traditional lifeways. Mining, lumbering, grazing, commercial fishing, tourism, and the growth of settlements disrupted traditional Indian relationships to the land. As hunting, fishing, and gathering wild foods were no longer possible, they were forced into dependency upon the Euroamerican settlers.

Little is known about the period of initial contact on the Divide between Indians and Euroamericans. Resistance to white incursions occurred, mostly in the form of Indian raids upon the stock and camps in desperate attempts to find food. Disruption of subsistence patterns, starvation, disease, and violence resulted in a severe decline in Native populations and abandonment of villages. The Federal Government's Indian "relocation" policies in California were set in motion during the 1850s with the creation of rancherias and reservations. Nisenan either stayed on reservations or rancherias and married into their own or into other Indian tribes, or became assimilated into the dominant Euroamerican society. Nonetheless, reports of early anthropologists and census records indicate that some Nisenan remained in their home places. Nisenan recall place names for several village locations on the Divide and in the project vicinity (Littlejohn n.d.; 1928): *Hem'hem* near Yankee Jim's and *O'pok pok* at Todd's Valley, etc. A Nisenan cemetery is located in the Spring Garden/Todd Valley area and continues to be used and maintained. Today, significant numbers of Nisenan are dispersed throughout many Sierran foothill communities. On the Foresthill Divide, interest in maintaining traditional ways is reflected in the revival of dances, basketry skills and new construction for a ceremonial roundhouse near Todd's Valley. The Todds Valley Miwok-Maidu Cultural Foundation has been established within the last seven years and the group is in the process of gaining official tribal recognition from the U.S. government (Brown, Drone, Portrius, Suehead, and Zellner personal communication 2002). Members conduct monthly meetings. The group is committed to preserving their heritage and reestablishing their presence and traditional practices on the Divide. Miwok-Maidu plant managers are actively involved in harvesting plants of traditional importance and are concerned about the disappearance of oak stands with their prized acorn crop.

HISTORIC PERIOD

Gold Rush Period (1848-1859)

A few months after John Marshall's gold discovery in January of 1848 at Sutter's Mill in Coloma, Claude Chana found gold in Placer County in Auburn Ravine near Ophir. Thousands of gold seekers soon arrived and within a few years settlements were permanently established in Placer County. The first prospecting along the Foresthill Divide was confined to the shallow placers along gravel bars and the beds of running streams where younger Quaternary stream deposits eroded the gold-bearing gravels laid down in earlier times. These shallow deposits were initially mined by a variety of simple surface hand mining techniques that involved the basic principle of agitating gold-bearing gravel in water-filled containers. Early gold extraction devices include gold pan, rocker, long tom, and sluice box.

Older Tertiary Gravels, such as those formed by the ancestral American River that drains the Foresthill Divide, were laid down by larger and slower Sierra Nevada rivers with gradual slopes. These huge deposits of ancient, loosely cemented gold-bearing gravels are more deeply buried and required more sophisticated techniques in their extraction. One method, ground sluicing, employed gravity flows of water aided by pick and shovel to break up deposits. Hydraulicking was a more powerful form of ground sluicing, using water under pressure to dislodge and direct gold-bearing deposits into sluices where gold was trapped. "Coyoting" and later, more elaborate drift mining techniques, both employed horizontal or vertical excavations sunk into the ground to reach the gold bearing gravels.

The majority of mining on the Foresthill Divide was accomplishing by drift mining, using an adit and/or a shaft to reach the gold-rich ancient river channel lying deep under the ridge. Gold was "accidentally" discovered within the deep river gravels below Foresthill after a landslide exposed nuggets of gold in the debris. By 1857, there were 25 drift operations in the area, most tunnels entering into the gravel deposits from the east side of the Divide.

To accommodate simple mining techniques and to keep pace with the innovations of increasingly more sophisticated and powerful hydraulic methods, which demanded enormous volumes of water, an elaborate system of ditches, flumes and storage reservoirs was put in place. Financial backing requiring larger capital reserves prompted the development of ditch companies that directed their water delivery and storage facilities to major diggings. Ditches and flumes headed in high elevation reservoirs and wound their way down mountainsides.

Placer mines far outnumbered quartz lode mines on the Foresthill Divide. The "Mother Lode" is the popular name for the main quartz vein that is associated with the intrusion of the Sierra Nevada batholith. This single lode is split into a number of seams that underlie the quartz lode region within western and central Placer County. These gold-quartz veins occur along contacts between granite and metamorphosed sedimentary rocks, volcanics and deeply weathered serpentinite. These and other hardrock sources were tapped by excavating tunnels with drills and dynamite in order to follow gold bearing quartz veins. Rock was transported out of the tunnels on ore carts and then transferred to stamp mills where the rock was crushed to release the gold ores from the surrounding material. The pulverized ore was then treated to remove impurities.

After the discovery of gold along the Foresthill Divide at Birds' Store in 1850, communities quickly sprang up around the mines. By 1850, wagons traveled up onto the Divide, following old Indian trails, and pioneered the main travelway that became today's Foresthill Road (Forest Highway 124). Foresthill (California Historical Landmark No. 399) was established in the fall of 1850 by M. Fannan, James Fannan and R.S. Johnson as a small trading post. By 1852, Foresthill became the business and transportation center of the Divide and survives as the only remaining viable community.

Throughout this early gold rush period, logging, agriculture, and transportation were adjuncts in support of the mining industry. Many migrants who flocked to the county had

no intention of working the mines, but rather of working the miners, an equally lucrative prospect with burgeoning populations needing shops and services, food and clothing, transportation, and building materials.

Sawmills immediately sprang up around mining camps to supply lumber for mine timbering and building materials for the growing settlements. The mills at Foresthill and Todd Valley were in operation in the 1850s.

The growth of gold rush era camps and towns stimulated the development of transportation systems based on supplying mines and camps with needed mail, express and provisions. By the 1850s, the route along the current Forest Highway 124 was established as the main travelway between Auburn and the Foresthill Divide. The original road undoubtedly followed an earlier Native American trail.

A heterogenous population composed of people from every corner of the world crowded into the Sierra mining districts, as reflected in the ethnic names assigned to some of the earliest camps in along the Foresthill Divide. Native Americans played an important and little acknowledged part in the earliest period of the gold rush. Immigrants from Hawaii, Latin America, Europe, Asia, and elsewhere were initially welcomed because of their knowledge of mining techniques, but anti-foreign feelings hampered their economic opportunities in Placer County and many groups were gradually forced out of the mines altogether into other economic pursuits. The mingling of these different ethnic groups and nationalities has produced a unique cultural collage from which the heritage of the Foresthill Divide is drawn.

Post-Gold Rush Period (1859-present)

The years following 1859 are marked by technological changes that prompted a shift in the organization and financial arrangements of the mines. The era of the self-sufficient, itinerant prospector with pick and shovel gave way to a system based increasingly on cooperation between groups of miners and ultimately to the miner as wage earner employed by large multidivisional corporations tied to the national and world economy. National and foreign capitalists, initially investing only in mining, now poured their money into logging, transportation and water development, enterprises that paralleled mining interests. The period after 1859 can also be characterized by a change in settlement patterns, away from the "boom-bust" camp structure common to the early mining frontier, and the growth of a more mature, stable, and diversified economy and social structure that were not based on mining alone.

The beginning of this period was heralded by a drop in the county's mining economy, as mining in the American River basins was curtailed by the exodus of miners and capitalists to the Comstock rush of 1859-1865. By the late 1860s, the Placer County mines were again productive. Until 1884, when the hydraulic mines were restrained from dumping their tailings into the streams, the largest hydraulic mines in the world were operated here, providing the county's largest source of gold.

From the turn of the century to 1917, statewide gold production statewide rose. With the restrictions imposed on hydraulic mining, lode mining, drift mining and gold dredging supplied the principal sources of gold. Inflation following World War I caused the continual decline of gold production until the early 1930s when the prices increased during the depression years; gold output in the state was nearly as high as it had been during the gold rush. Thousands of urban unemployed rushed to the Sierran gold fields to prospect with pan and rocker. The revival of mining infused communities along the Foresthill Divide with new life and stimulated non-mining industries such as logging and agriculture. Many mines were shut down during World War II and reopened soon afterward, but with decreasing productivity. Gradually outside investment capital was funneled away from mining into California agriculture and real estate. The Placer County gold mining industry has not since recovered.

Foresthill's timber industry sustained the community after the decline of mining operations. However, the local timber industry was unable to compete with similar operations along the route of the transcontinental railroad. The onset of World War II prompted an increase in lumber production on the Foresthill Divide, as wartime demand stimulated the harvest of remaining large stands along the Divide.

As with lumber and other county industries, farm production for outside markets came after 1859. Along the Foresthill Divide, agriculture/ranching centered on the ridge tops and on orchard crops, hay production, and seasonal stocking of cattle.

The late 19th century brought a surge of interest and appreciation of wilderness recreation and forest lands increasingly became the relocation focus for retirees during the 20th century. The Tahoe National Forest promoted the recreational potential of its lands, which were enhanced by Civilian Conservation Corps crews between 1933 and 1943. Within the last few decades, recreational interest in the region has dramatically increased. This interest is accompanied by a rise in incoming residents who desire to live in an aesthetically pleasing and historically rich area. The enhancement and interpretation of selected historic sites and buildings have boosted community economies throughout the Foresthill Divide in the form of recreational tourism.

METHODS

Research entailed a general literature review and formal records search of prehistoric and historic sources concerning the Forest Ranch project. A car tour of portions of the project area was conducted in the company of the project sponsor, the president of the Foresthill Divide Historical Society, and four members of the Todd Valley Maidu-Miwok Cultural Foundation. No on-the-ground archaeological field survey was performed.

DATA SOURCES

In order to determine previously recorded heritage resources in the project area, archaeological site records, held at the archaeological inventory for the North Central

Information Center (NCIC), California State University at Sacramento (CSUS) were reviewed. The NCIC maintains records of archaeological sites inventoried in Placer County, including the Foresthill Divide. Basic heritage resource inventories reviewed at this facility include: the *National Register of Historic Places* (through current volume), the *State of California Historic Landmarks and Points of Historic Interest* (through current listings), *Historical, Architectural and Archaeological Resources of Placer County* (12/1992), *Foresthill Divide Historic Resources Survey* (4/20/1991), *Directory of Properties in the Historic Property Data File for Placer County* (1/13/00), *Survey of Surveys-A Summary of California Historical and Archaeological Research Surveys* (California Department of Parks and Recreation 1989), *California Office of Historic Preservation Archaeological Determinations of Eligibility for Placer County* (1/28/00), and *Caltrans Bridge Survey* (10/31/89). Other local histories and secondary sources consulted are listed in the references cited section of this report and in Lindström (2000).

To complete this review of archaeological site records and survey reports, contacts with a variety of public and private agencies were also initiated. These included the Tahoe National Forest Foresthill Ranger District (Nolan Smith, District Archaeologist, personal communication 2002), the Foresthill Divide Historical Society (Gerda Percival, President, personal communication 2002) and the Native American Heritage Commission. The counsel of representatives of the local Todds Valley Miwok-Maidu Cultural Foundation was sought, in order to determine known areas of Native American cultural ecology and history and management concerns over traditional tribal lands within the project area. As part of this consultation, the president of the Foresthill Divide Historical Society (Gerda Percival) and five members of the group (Fern Brown, Marge Drone, Leon Portrius, Levina Suehead, and Bridget Zellner), along with project sponsor, Doug Ryan, participated in a car tour of more accessible portions of the project.

PRIOR HERITAGE RESOURCE INVESTIGATIONS

Archaeological investigations on the Foresthill Divide, or in western Placer County in general, are limited. Important archaeological sites have been studied within the Highway 124 corridor and the proposed Auburn Dam Project area. Other minor archaeological excavations have been conducted on the Tahoe National Forest at elevations generally above 3500 feet and outside the project area. Recorded sites on the Divide indicate a long time sequence of use; however, there have been few excavations to provide details and in-depth information.

ARCHAEOLOGICAL COVERAGE

A records search (NCIC File No. PLA-02-64) at the North Central Information Center (NCIC) at California State University at Sacramento (CSUS) disclosed that the project area has been subject to archaeological coverage by registered professional foresters (RPF) as part of timber harvest plans or THPs (Ferrier 1997; Funk 1996, 1997, 2000; Garcia 1995; Stewart 1993, 1994; Tate 1995). Prior archaeological coverage is shown on Figure 4. Archaeological coverage strategies, which range from complete to cursory examinations, have not been consistently presented in these archaeological reports, however. The

California Division of Forestry (CDF) forest practice rules require RPFs to submit archaeological reports within 30 days of a THP approval. These reports are then reviewed and "spot" field inspected by CDF archaeologists and copies of the final report are filed with the appropriate information centers (e.g., NCIC-CSUS). RPFs are para-professional archaeologists and conduct archaeological surveys during the course of their timber stand evaluations. Consequently, the thoroughness of the ground surface inspection and the quality of reporting are variable and reports are evaluated on an individual basis.

KNOWN HERITAGE RESOURCES

Prehistoric Resources

No Native American resources have been inventoried within the Forest Ranch project.

Historic Resources

RFPs Funk (1996, 1997, 2000) and Stewart (1993, 1994) and Tate (1995) have recorded a total of 27 historic resources within the project area, including 10 mine ditches, five mine shafts, six mine tunnels, two mine ponds, one mine "glory hole", two house sites, and a portion of the Foresthill town dump. Archaeological site location maps contained within these THP reports also show a number of roads and landforms (mining?). These resources are unnumbered and not keyed to heritage resource descriptions. Their historic status is unknown.

Heritage Resource Sensitivity

Some idea of expected heritage resource sensitivity serves as a general guide to advanced planning by providing a means of estimating the probable likelihood of sites occurring within a given area proposed for development. Sensitivity ratings indicate the degree of probability of finding sites in a specific project area and the relative number and types of sites expected. In this way, project sponsors can anticipate, at the outset, the extent to which heritage resources may become an issue for consideration later on.

Heritage resource sensitivity predictions for the Foresthill Divide Community Plan area, of which this project is a part, are presented in Lindström (2000). Archaeological expectations have been derived from the collective results of many archaeological surveys in similar environments throughout the region and incorporate the obvious correlation between heritage themes, archaeological site locations and basic environmental variables (water, level ground, etc.). According to heritage resource location criteria detailed in Lindström (2000), the Forest Ranch project area is highly sensitive to contain Euroamerican historic resources and moderately sensitive to contain Native American resources. It is likely that future intensive and systematic archaeological surveys of the project area would yield more heritage resources than have been previously identified.

Confidentiality

In order to prevent vandalism and unauthorized artifact collecting and to protect landowners from trespass, the locations of heritage resources are kept confidential. California Code Section 6254.10 exempts archaeological site information from the California Public Records Act, which requires that public records be open to public inspection. Location information is restricted and is not circulated as part of public documents but is used for planning purposes only. Known archaeological site locations within the Forest Ranch project area are plotted on the map in the attached confidential appendix.

Traditional Native American Values

In addition to archaeological resources, the Forest Ranch project contains resources of traditional value to contemporary Native Americans (Brown, Drone, Portrius, Suehead, and Zellner personal communication 2002). On a tour of the project area with members of the Todd Valley Miwok-Maidu Cultural Foundation, a number of issues and concerns surfaced, ones that should be taken into consideration during future project planning.

Plant and Animal Resources

During the on-site tour, a number of native plants of importance to Maidu and Miwok plant specialists were identified (acorn, willow, mushrooms, willow, hazelnut, etc.). Harvest and management of these plants are important to maintaining traditional subsistence and utilitarian practices. Members of the Todd Valley Miwok-Maidu Cultural Foundation are concerned about the environment and the future of the Foresthill Divide. They want to preserve their traditional cultural knowledge, ancestral prehistoric sites, and native plant and animal resources.

Access

The importance of maintaining ties to their traditional land base and social network by using the remaining resources in traditional ways is a prevailing theme. Local Native Americans lament the loss of significant plant resources and access to landscapes. They acknowledge the importance of using and honoring a resource to maintain its vitality, and of spiritual responsibility to the land. This preliminary study has indicated that continued visitation on ancestral lands and to archaeological sites is effective in prompting individual recall on everything from childhood experiences and memories to traditional skills, life works, and legends. Access into portions of the project area is important to accomplish these goals.

REGULATORY FRAMEWORK

The integrity of the unique and varied heritage resources of Foresthill Divide is being diminished daily by natural deterioration and the processes and the pressures of growth. A variety of federal and state laws and local ordinances have been passed in the last few decades that are designed to protect archaeological resources. Several California public resource codes make it illegal to damage objects of historical or archaeological interest on public or private lands or to disturb human remains, including those in archaeological sites. It is illegal to possess remains or artifacts taken from Native American graves and the

Native American Heritage Commission must be consulted whenever Native American graves are found.

HERITAGE RESOURCE EVALUATION CR ITERIA

CEQA criteria of significance [Section 15064.5] are one means of determining whether a site is a historical resource. The criteria are modeled upon guidelines established by the National Register of Historic Places (NRHP). For the purposes of CEQA, a significant heritage resource is one which:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in our past;
- 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
- Has yielded, or may be likely to yield, information important in prehistory or history.

In general, CEQA provides protection to "historical resources" and to "archaeological resources" that are "important" and/or "unique." An "important archaeological resource" must meet one or more of the above CEQA criteria. A "unique archaeological resource" must qualify under one of the first three CEQA criteria [Public Resources Code Section 21083.2(g)]. Public Resources Code Section 21084.1, which is part of CEQA, provides additional guidelines for the designation and additional protection of heritage resources classified as "historical resources." Resources that must be treated as "historical" are:

- Those resources listed in, or determined to be eligible for listing in, the California Register of Historical Resources;
- Those resources presumed to be historical in the absence of a preponderance of evidence indicating otherwise and that may be included in a local register of historical resources, as defined in Public Resources Code section 5020.1(k);
- Those resources deemed significant pursuant to criteria set forth in Public Resources Code Section 5024.1(g); and/or
- Those heritage resources that an agency, going beyond the minimum call of statutory duty, has freely chosen to consider "historical."

Significant heritage resources are also acknowledged on a number of local registers. Eligibility criteria for the heritage registers generally incorporate the basic tenants of criteria established in the National Register and the California Register. However, these criteria have been modified in order to include a broader range of resources that better reflect the history of California at the local level. For example, the State Historic Landmark Program and the Point of Historic Interest Program also recognize buildings, sites, and objects of local or statewide importance.

IMPACTS AND IMPACT MITIGATION

IMPACTS

If a heritage resource is determined significant, effects of a project on the heritage property should be assessed. CEQA addresses the significance of impacts on historical and unique archaeological resources in Section 15064.5. A property is impacted (or effected) if the project will diminish the integrity of a property's location, design, setting, materials, workmanship, feeling, association, or the quality of data suitable for scientific analysis. In particular, the archaeological remains left by region's ancestral Native Americans require respectful treatment, along with the continued incorporation of contemporary Native American opinions, knowledge and sentiments into the planning process.

Several potential project-related effects are most likely to occur within the Forest Ranch area. These impacts may result from the disturbance or destruction of prehistoric or historic archaeological sites during project ground disturbance activities, and/or general changes in land use that may affect the integrity of the setting of heritage properties by introducing incompatible visual or audible elements into the setting of a potentially significant resource. In addition, indirect impacts due to increased public access into an area containing a site could result in vandalism. Of further concern are potential impacts to natural resources of importance to contemporary Native Americans, such as traditional plants.

MITIGATION OF IMPACTS

Once it has been determined that a project may adversely effect a potentially significant heritage property, appropriate mitigation measures should be implemented and carried out. A means to monitor mitigation must also be identified. Prior to the property's modification or destruction, field-related mitigation activities should be implemented in consultation with appropriate federal, state and local agencies and Native American group. Consideration and discussion of mitigation measures proposed to minimize significant impacts are contained in CEQA Section 15126.4. Mitigation measures can include project modification designed to protect and/or avoid a site. In lieu of project modification, a data recovery program can involve archival research, photo documentation and mapping, removal of a historic feature, collection of artifacts, recordation of features, test excavations, larger scale excavations, or some combination of these tasks. Interpretive development of heritage remains is another form of impact mitigation that enhances not only public education and enjoyment, but greatly augments the local economy. Other more project-specific mitigation measures are listed below.

1) An archaeological field survey incorporating a systematic mixed reconnaissance strategy should be conducted by professional archaeologists. At a minimum, project areas subject to project ground disturbance should be examined. Work should be conducted according to the guidelines established by the State of California, Office of Historic Preservation. Artifacts, features and sites encountered should be formally recorded on State of California archaeological forms. Findings should be presented in a final report summarizing the natural and cultural setting and detailing the prefield and field methods employed, survey

results, potential heritage resource significance, project impacts, and proposed mitigation measures.

2) Further archaeological investigations should be conducted in consultation with the Foresthill Divide Historical Society. The society is committed to preserving the history of the Foresthill Divide. The unique history of the Divide, along with its recreational potential, are viewed as critical elements in the economic well being of the community and quality of life for its residents. In so doing, there is concern that future developments on the Divide are careful not to alter the historic "flavor" of the area. The historical society wishes to be consulted regarding future development issues on the Divide in order to insure preservation of remaining heritage resources and monitor new development.

3) Future archaeological work should be conducted in consultation with the Todd Valley Miwok-Maidu Cultural Foundation. The project sponsor is to be commended for his cooperation and involvement in the initial on-site tour and interview. This has opened the door for further interactive studies, affirming the role of local Maidu and Miwok people as partners in the interpretation of their own archaeological past.

3) As part of an effort to sustain traditional cultural practices, portions of the project area may be set-aside for the harvest and management of traditional plants by Maidu and Miwok traditionalists. Additional work may involve an ethnobotanical survey, combining the skills of a project ethnobotanist and a Native American plant specialist to locate and document traditional plant populations and to identify attributes sought and cultured by Maidu and Miwok collectors. Maidu and Miwok involvement in project revegetation efforts is also warranted.

4) To insure the integrity of traditional plant resources and enhance their Native management, issues such as the application of herbicides, controlled burning, and dust abatement should be considered in consultation with members of the Todd Valley Miwok-Maidu Cultural Foundation.

5) Access to portions of the Forest Ranch project area is important to maintaining ties to their aboriginal land base and social network by using the remaining resources in traditional ways and dialog between the project sponsor and the local Native American community should continue.

6) To affirm the role of local Maidu and Miwok people as partners in the interpretation of their own archaeological past, a representative of local Native American interests should be formally retained as a Native American consultant on future archaeological field surveys.

Cumulative Impacts and Mitigation Measures

Off-Site Mitigation

To address cumulative impacts to Native American sites on the Foresthill Divide, in general, and the Forest Ranch project, in particular, off-site mitigation measures to address the more

generalized needs and concerns of local Native Americans should be considered in exchange for mitigation measures aimed at heritage resources located within the project area. Such measures might address: (a) the preservation and interpretation of aboriginal archaeological sites outside the project area; (b) access to and management of plant collecting and hunting areas outside the project area; and (c) enhancement of other on-going cultural projects in which the Todd Valley Miwok-Maidu Cultural Foundation is engaged.

Interpretation

For millennia, Native Americans have resided on the Foresthill Divide and visited the project area. For over a century and a half, Euroamericans have influenced historic events here. New-comers to the area who plan to visit or take residence in the Forest Ranch planned community should be aware of the past, not only as a matter of public education but also to enrich their personal association with the area. Installation of interpretive signs and panels, the designation of natural-cultural parks, and the establishment of heritage demonstration sites are just a few of the many avenues of interpretation for residents and visitors to Forest Ranch.

Interpretation of the rich heritage resource base present within the Forest Ranch project area may become a key creative component of a program to mitigate potential project impacts to significant heritage resources. Viewed as a marketing opportunity, rather than a constraint, heritage values can be used as an organizing theme for the planned community. Residents of the Foresthill Divide and tourists alike expect a high-quality residential and recreational experience that is enhanced by the region's unique and fascinating past; visitors and residents to Forest Ranch can anticipate the same. In these efforts, the Forest Ranch development can be recognized as a steward of local heritage that celebrates cultural diversity and human ingenuity. Forward planning that incorporates the selective preservation and interpretation of a portion of the heritage resource base within the project area can not only foster public enjoyment and education but can go far to augment the development's marketing success and economy.

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FIGURES

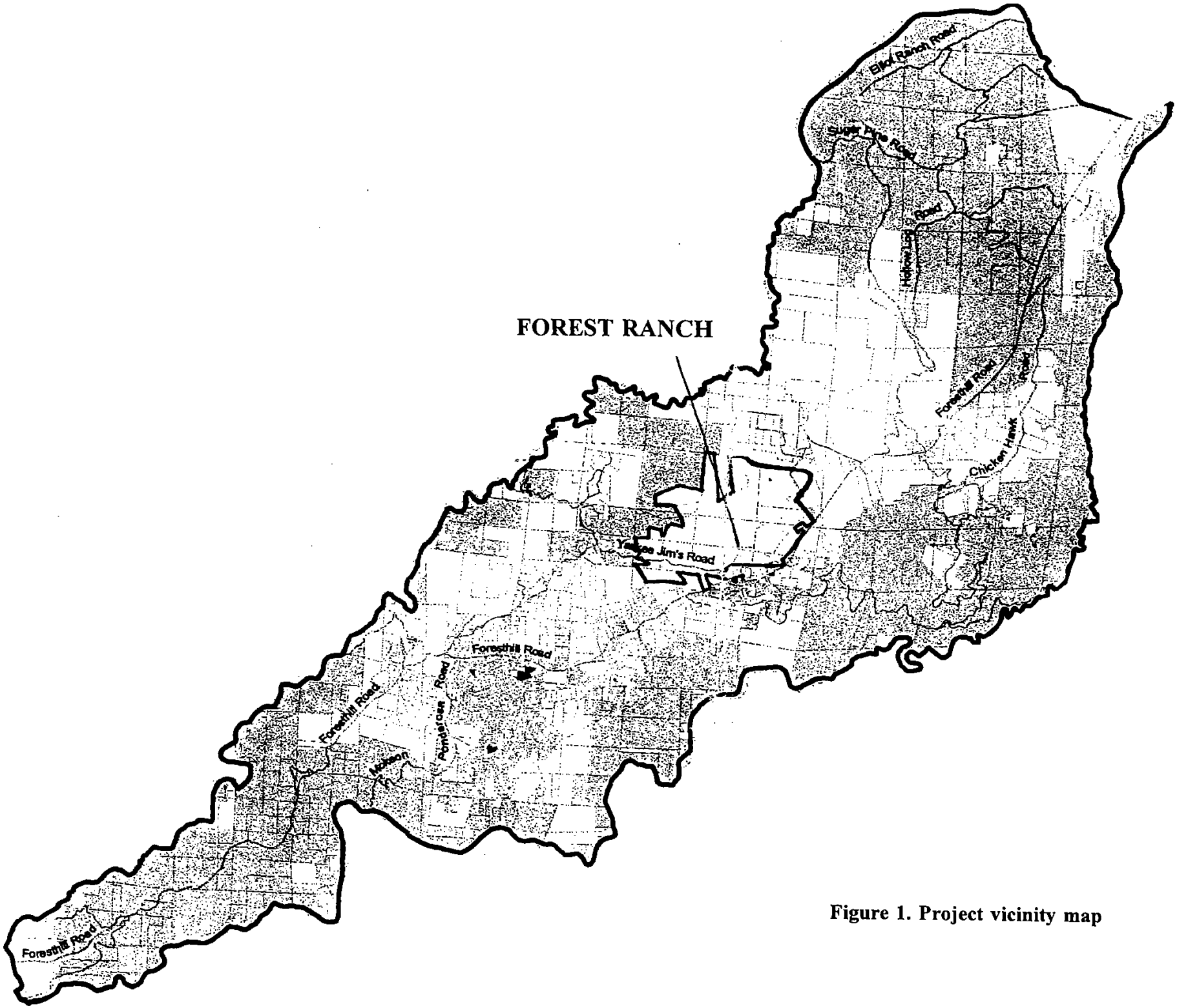
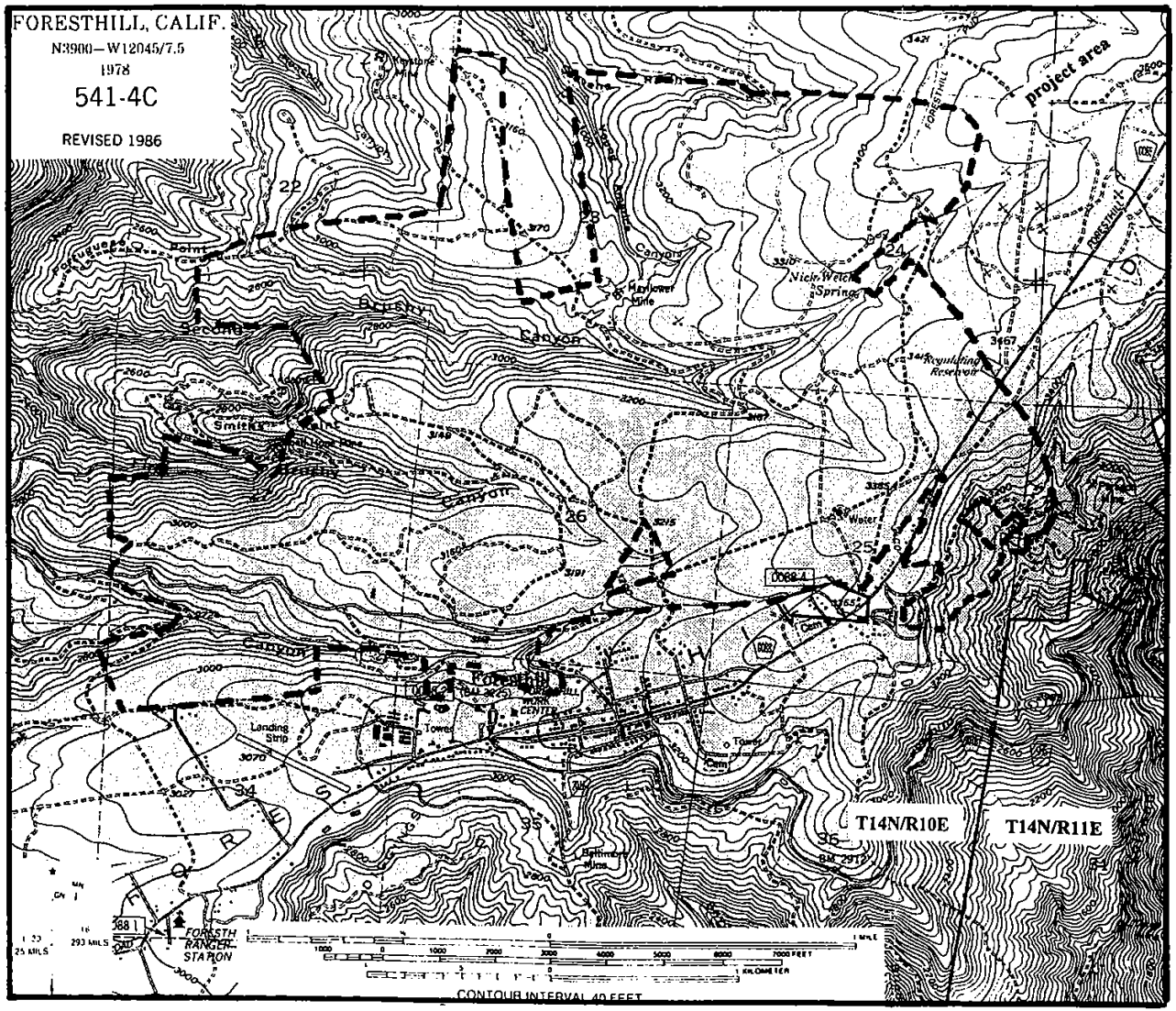


Figure 1. Project vicinity map



FOREST RANCH PROGRAMATIC EIR
HERITAGE RESOURCE STUDY

Figure 2. Project location map

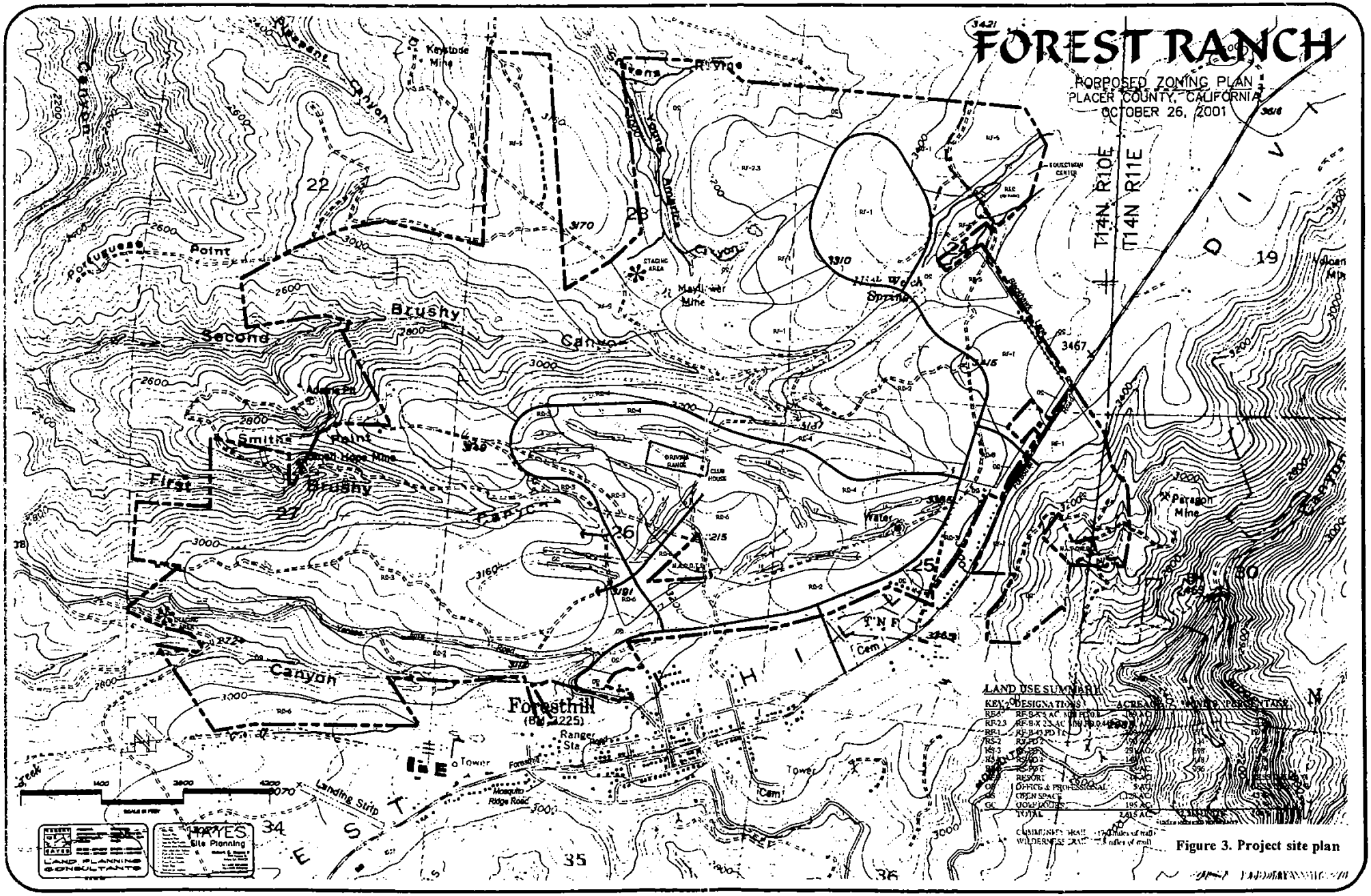
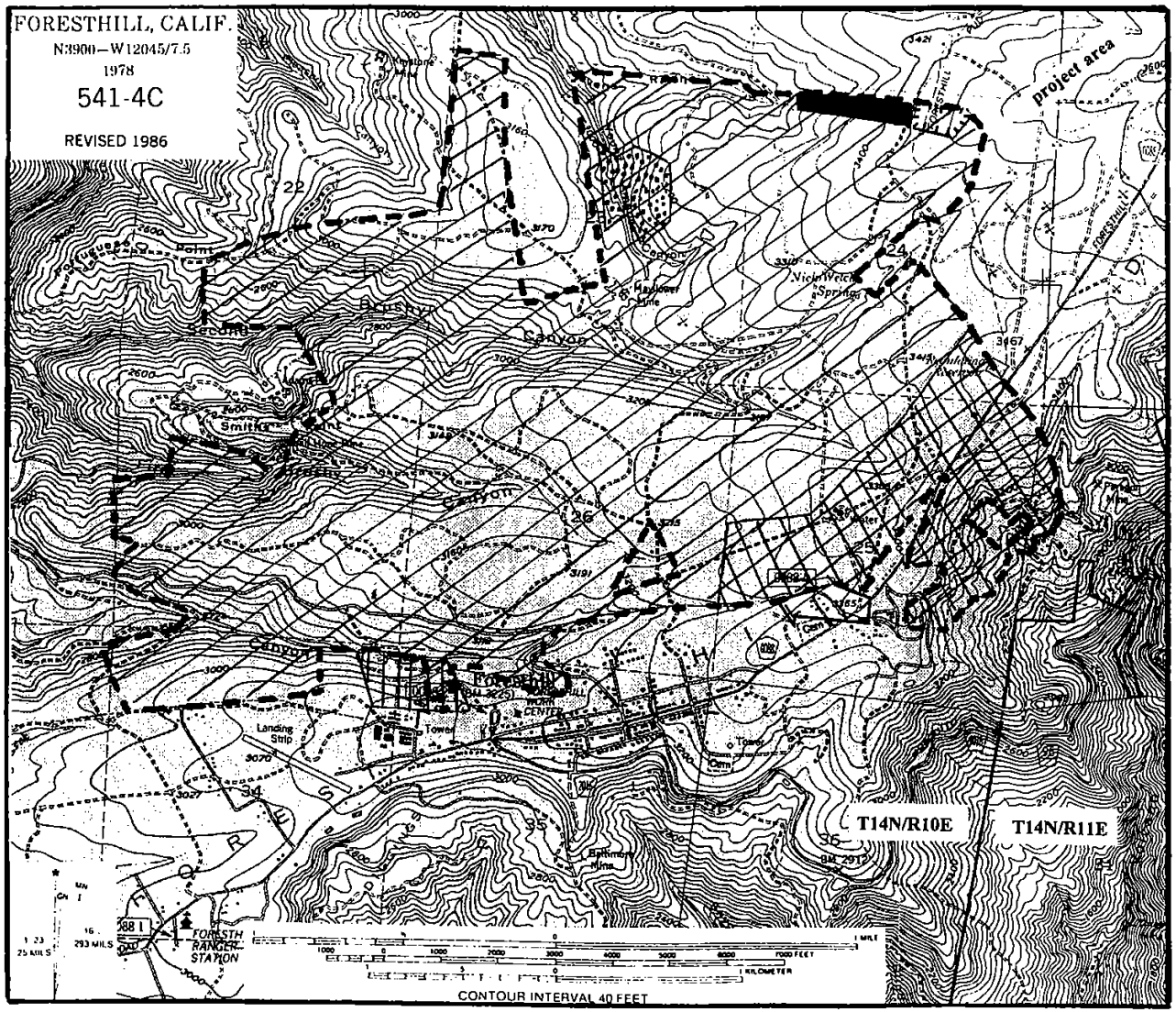


Figure 3. Project site plan



FOREST RANCH PROGRAMATIC EIR
HERITAGE RESOURCE STUDY

Figure 4. Prior archaeological coverage

- Ferrier 1997
- Funk 1996; Tate 1995
- Funk 1997
- Funk 2000
- Garcia 1995
- Stewart 1993
- Stewart 1994

CORRESPONDENCE

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390

January 9, 2002

PLACER COUNTY
DATE
RECEIVED
JAN 10 2002
DP
PLANNING DEPARTMENT

Mr. Dean Prigmore
Placer County Planning Department
11414 B Avenue
Auburn, California 95603

RE: SCH# 2001122105 Forest Ranch

Dear Mr. Prigmore:

The Native American Heritage Commission has reviewed the above mentioned NOP. To adequately assess and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

1. Contact the appropriate Information Center for a record search. The record search will determine:
   - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
   - If any known cultural resources have already been recorded on or adjacent to the APE.
   - If the probability is low, moderate, or high that cultural resources are located in the APE.
   - If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
   - The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
   - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
3. Contact the Native American Heritage Commission for:
   - A Sacred Lands File Check.
   - A list of appropriate Native American Contacts for consultation concerning the project site and to assist in the mitigation measures.
4. Lack of surface evidence of archeological resources does not preclude their subsurface existence.
   - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
   - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
   - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5 (e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

If you have any questions, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

CC: State Clearinghouse

Susan Lindström, Ph.D.
Archaeologist

P.O. Box 3324
14931 Denton
Truckee, CA 96160
916-587-7072
FAX 916-587-7083

August 1, 2002

Debbie Pilas-Treadway
Associate Governmental Program Analyst
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento CA 95814
916-653-4082 (657-5390 fax)

Dear Ms. Pilas-Treadway;

I have been retained by Quad-Knopf to conduct background research for the Forest Ranch EIR The planning area encompasses approximately 2000 acres along the Foresthill Divide between the North and Middle Forks of the American River (see enclosed map). At this generalized stage of planning, no specific project particulars are proposed.

I have met with members of the Todds Valley Miwok-Maidu Cultural Foundation and toured them through the project area. I also wish to bring this project to your attention and invite your opinions, knowledge and sentiments regarding any potential concerns for traditional Native American lands within this project area. I look forward to hearing from you if you have any additional information regarding this area.

Sincerely,

Susan Lindström

Susan Lindström
Consulting Archaeologist

Enclosure

DATE: August 8, 2002

TO: Todds Valley Miwok-Maidu Cultural Foundation
P.O. Box 1490
Foresthill CA 95631
530-367-3893

FROM: Susan Lindström, Consulting Archaeologist
Box 3324, Truckee CA 96160
530-587-7072 (587-7083 fax)

RE: Forest Ranch Programatic EIR

As some of your members are aware, I have been retained by Quad-Knopf to conduct background research for the Forest Ranch EIR. The planning area encompasses approximately 2000 acres along the Divide between the North and Middle Forks of the American River (see enclosed map). At this generalized stage of planning, no specific projects are proposed.

I toured the project area with Fern Brown, Marge Drone, Leon Portrius, Levina Suehead, and Bridget Zellner of the Todds Valley Miwok-Maidu Cultural Foundation on June 22nd to discuss potential concerns within the project area. Again, I wish to bring this project to your attention and invite your opinions, knowledge and sentiments regarding any potential concerns for traditional Native American lands within this project area. I look forward to hearing from you if you have any additional information regarding this area. Should you choose to correspond, I would be happy to addend your letter to the final report to Placer County.

Sincerely,

Susan Lindström
Consulting Archaeologist

Enclosure

Appendix H

FOREST RANCH DEIR

TRANSPORTATION AND CIRCULATION ELEMENT

Prepared For:

Quad Knopf
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Roseville, CA 95678

Prepared By:

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(916) 660-1555

December 17, 2003

5600-32

Forest Ranch DEIR.rpt

FOREST RANCH DEIR
TRANSPORTATION AND CIRCULATION ELEMENT

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December 17, 2003

KDA

FOREST RANCH DEIR
TRANSPORTATION AND CIRCULATION ELEMENT

INTRODUCTION

This report summarizes **kdANDERSON Transportation Engineers'** analysis of the potential impacts resulting from development of the Forest Ranch project located in Foresthill, California. The Forest Ranch project is a mixed-use development that is comprised of 513 single-family dwelling units and 1,700 senior dwelling units. Of the 513 single-family residences, a total of 216 units are proposed to develop as townhomes. The non-residential component of the project entails construction of 5,000 square feet of office uses, 14,000 square feet of medical and dental uses, a 50 horse equestrian center, and a 100-space RV park.

The scope of this traffic analysis is intended to conform to Placer County guidelines. The study includes assessment of the impacts of developing the site relative to current and future traffic conditions in the vicinity of the site. Toward this end, "Existing" traffic conditions have been evaluated through observation of current weekday daily traffic volumes. "Existing" operating levels of service have been calculated. Probable project trip generation has been estimated. Utilizing an expected trip distribution, project generated traffic was assigned to the study area street system. Levels of service were then recalculated to determine the anticipated impacts of proposed development on "Existing" traffic conditions.

In the future, impacts resulting from development of the project site were compared to the draft Foresthill Community Plan traffic and circulation element that is currently in the process of adoption. Improvements to offset project impacts have also been described.

SETTING

Streets and Highways - Functional Classification

Foresthill is served by a system of county roads. The existing roadways in the Foresthill area are primarily comprised of 2-lane rural facilities reflecting the rural nature of the County. A description of each of the study area roadways is presented in the test that follows. KdANDERSON Transportation Engineers conducted new daily traffic counts during May 2000 and these new counts are presented in the descriptions of the roadways.

Foresthill Road. Foresthill Road is a two-lane rural roadway. This roadway provides the principle link between Auburn and Foresthill. This road also serves as the main route along the divide and continues easterly to Soda Springs. This facility was under construction at the time the traffic counts were collected.

Foresthill Road currently carries 6,650 ADT east of the two-lane Foresthill Bridge. East of Happy Pines Drive, daily traffic volumes on Foresthill Road reach 4,876 ADT. West of Owl Hill Court, traffic volumes on Foresthill Road rise to 5,312 ADT.

KDA

East of the Foresthill community, daily traffic volumes on Foresthill Road drop significantly. West of Michigan Bluff Road, Foresthill Road currently carries 796 ADT with daily traffic volumes on Foresthill Road dropping to 481 ADT east of Michigan Bluff Road.

Portions of Foresthill Road have recently been reconstruction. The 2.4-mile stretch of road was the last of three phases to be completed under the Federal Highway Administration contract, which added passing lanes and widened many of the stretches of Foresthill Road between Auburn and Foresthill.

Yankee Jim's Road. Yankee Jim's Road is a narrow two facility. This facility connects the community of Foresthill to Canyon Way just south of Colfax. Currently, Yankee Jim's Road carries 186 ADT north of Race Track Street.

Spring Garden Road. Spring Garden Road is a two-lane roadway. This facility extends between Foresthill Road in the south and Yankee Jim's Road in the north. Currently, Spring Garden Road carries 624 ADT.

McKeon-Ponderosa Way. McKeon-Ponderosa Way is a two-lane roadway. This facility originates at Foresthill Road in the north. Extending to the south, McKeon-Ponderosa Way provides access to the west end of the Todd Valley area before winding further south toward the Middle Fork American River Canyon. Currently, McKeon-Ponderosa Way carries 1,495 ADT just south of Foresthill Road.

Happy Pines Drive. Happy Pines Drive is a two-lane roadway that provides access to Todd Valley. Originating at Foresthill Road, Happy Pines Drive extends to the south through Todd Valley before terminating at Green Leaf Lane just south of Todd Creek. Currently, Happy Pines Drive carries 1,293 ADT.

Todd Valley Road. Todd Valley Road is also a two-lane roadway. Within the Todd Valley area, Todd Valley Road originates at Foresthill Road. Extending to the south, Todd Valley Road loops to the east and then back to the north to terminate at Foresthill Road. Currently, Todd Valley Road carries 2,663 ADT on the western loop just south of Foresthill Road. The daily traffic on the east portion of the loop is substantially lower with daily traffic volumes of 319 ADT just south of Foresthill Road.

Mosquito Ridge Road. Mosquito Ridge Road is a two-lane roadway in the vicinity of Foresthill community. Originating at Foresthill Road, Mosquito Ridge Road winds to the northeast into the Tahoe National Forest. Currently, Mosquito Ridge Road carries 230 ADT just east of Foresthill Road.

Race Track Street. Rack Track Street is a two-lane roadway. Originating at Foresthill Road in the west, Rack Track Street parallels the north side of Foresthill Road before terminating in the east at Yankee Jim's Road. Currently, Race Track Street carries 901 ADT east of Foresthill Road.

Main Street. Main Street is a two-lane roadway that parallels the south side of Foresthill Road within the community of Foresthill. Extending from Foresthill Road in the west, Main Street provides access to the local businesses before connecting to Foresthill Road at the east end of town. Currently, Main Street carries 691 ADT just east of Foresthill Road.

Michigan Bluff Road. Michigan Bluff Road is a two-lane roadway that provides access from the community of Michigan Bluff north to Foresthill Road. Currently, Michigan Bluff Road carries 200 ADT south of Foresthill Road.

North Fork Ponderosa Way. North Fork Ponderosa Way is a two-lane facility that originates at Foresthill Road west of Todd Valley. Extending to the north, North Fork Ponderosa Way winds its way toward Weimar.

Scenic Corridors

Because of the special scenic qualities of certain areas in the Foresthill Area, those roads traversing these areas are recommended to be protected by special ordinances to enhance scenic view sheds.

Auburn-Foresthill Road. The entire portion of Auburn-Foresthill Road within general plan area is designated in the Placer County Scenic Highways System.

Roadway Operations - Level of Service Methodology

To assess the quality of existing traffic conditions in the Foresthill area, levels of service have been identified for area roadways. "Level of Service" is a qualitative measure of traffic operating conditions whereby a letter grade, "A" through "F", corresponding to progressively worsening traffic conditions is assigned to an intersection or roadway segment. Current evaluation methodology is dependent upon the physical characteristics of the roadway segment and can additionally be categorized with respect to "urban" or "rural" conditions. Table 1 presents a description of the levels of service associated with two-lane rural highways.

The identified thresholds reflect information contained in the Placer County General Plan, as well as new information that reflect the character of Foresthill Road. Specifically, the effects of climbing lanes on average travel speed and resulting levels of service have been incorporated into these thresholds. Climbing lanes have the effect of raising level of service thresholds, although the overall capacity of the road remains constrained by the two lane sections.

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TABLE 1 TWO-LANE RURAL HIGHWAY LEVEL OF SERVICE DESCRIPTIONS	
LOS	**DESCRIPTION**
A	Free Flow: Almost no platoons of three or more cars. Driver delayed no more than 30 percent by slow moving vehicles.
B	Free Flow: Some platoons form. Driver delayed no more than 45 percent by slow moving vehicles.
C	Stable Flow: Noticeable increase in platoon formation and size. Drivers delayed more than 60 percent by slow moving vehicles.
D	Approaching Unstable Flow: Heavy platooning. Passing becomes difficult. Drivers delayed no more than 75 percent by slow moving vehicles.
E	Unstable Flow: Intense platooning. Passing is virtually impossible. Drivers delayed more than 75 percent by slow moving vehicles.
F	Forced Flow: Queues form behind breakdown points.

The evaluation criterion for the study area roadways was taken from the draft Foresthill Community Plan Area circulation element. The study roadways in the plan area were classified based on the individual roadway characteristics. Table 2 presents the evaluation criteria for levels of service on each of these roadway classifications. Table 3, which follows, presents the operating levels of service for each of these study roadways. As shown, currently all of the study roadways operate at level of service "C" or better. Figure 1 illustrates the daily traffic volumes within the Foresthill sphere of influence.

TABLE 2 EVALUATION CRITERIA FOR LEVEL OF SERVICE					
	Maximum Daily Traffic Volume Level of Service				
Roadway Capacity Class	**A**	**B**	**C**	**D**	**E**
1. Rural 2-lane-Rolling w/o Passing Lane	1,060	3,400	6,400	9,780	18,540
2. Rural 2-lane-Rolling w/39% Climbing Lanes	1,060	4,520	10,710	14,190	18,540
3. Rural 2-lane-Rolling w/40% Climbing Lanes	1,060	4,600	10,880	14,430	18,540
4. Rural 2-lane Rolling w/43% Climbing Lanes	1,060	4,860	11,450	15,170	18,540
5. Rural 2-lane Rolling w/71% Climbing Lanes	1,060	9,940	18,540	18,540	18,540
6. Rural 2-lane-Rolling (PCGP)	1,600	4,200	7,200	11,400	21,000
7. Rural 2-lane-Mountainous (PCGP)	800	2,400	4,200	7,200	14,000
8. Arterial - Low Access Control (PCGP)	7,000	10,500	12,000	13,740	15,000
Source: Placer County GP, kdANDERSON Transportation Engineers, based upon Highway Capacity Manual, Transportation Research Board, 1985.					

KDA

TABLE 3 EXISTING DAILY ROADWAY TRAFFIC VOLUMES AND LEVELS OF SERVICE				
Roadway	**Location**	**Criteria**	**Daily Traffic**	**LOS**
Foresthill Road	Foresthill Bridge to Drivers Flat Rd	Rural w/39% climbing	6,650	C
Foresthill Road	Driver's Flat to Spring Garden Rd	Rural w/40% climbing	4,876	C
Foresthill Road	Todd Valley (W) to Idle Wheels Mobile Home Park	Rural w/43% climbing	5,312	C
Foresthill Road	Idle Wheels Mobile Home Park to Michigan Bluff Rd	Arterial	796	A
Foresthill Road	E. of Michigan Bluff Rd	Arterial	481	A
McKeon-Ponderosa	S. of Foresthill Rd	Rural w/out passing	1,495	B
Spring Garden Rd	N. of Foresthill Rd	Rural-Mountainous	624	A
Happy Pines Dr	S. of Foresthill Rd	Rural w/out passing	1,293	B
Todd Valley Rd (W)	S. of Foresthill Rd	Rural w/out passing	2,663	B
Todd Valley Rd (E)	S. of Foresthill Rd	Rural w/out passing	319	A
Mosquito Ridge Rd	S. of Foresthill Rd	Rural-Mountainous	230	A
Yankee Jim's Rd	N. of Race Track St	Rural-Mountainous	186	A
Main St	S. of Foresthill Rd	Arterial	691	A
Michigan Bluff Rd	S. of Foresthill Rd	Rural w/out passing	200	A
Race Track St	N. of Foresthill Rd	Arterial	901	A

Transit Service

The Consolidated Transportation Service Agency (CTSA) provides public mass transportation service in Foresthill. CTSA runs one bus daily between Foresthill and Auburn. The bus has five scheduled stops within the community of Foresthill. The first pick up is at Forest House at 7:45 a.m. with the last pick up at the Todd Valley Mobile Home Park at 8:05 a.m. before the bus travels down the hill to Auburn. In Auburn, the bus drops off all patrons at the Elders Transfer station. In the afternoon, the bus reverses the route and leaves Auburn at 3:30 p.m. and travels back to Foresthill. The bus ride costs $2.50.

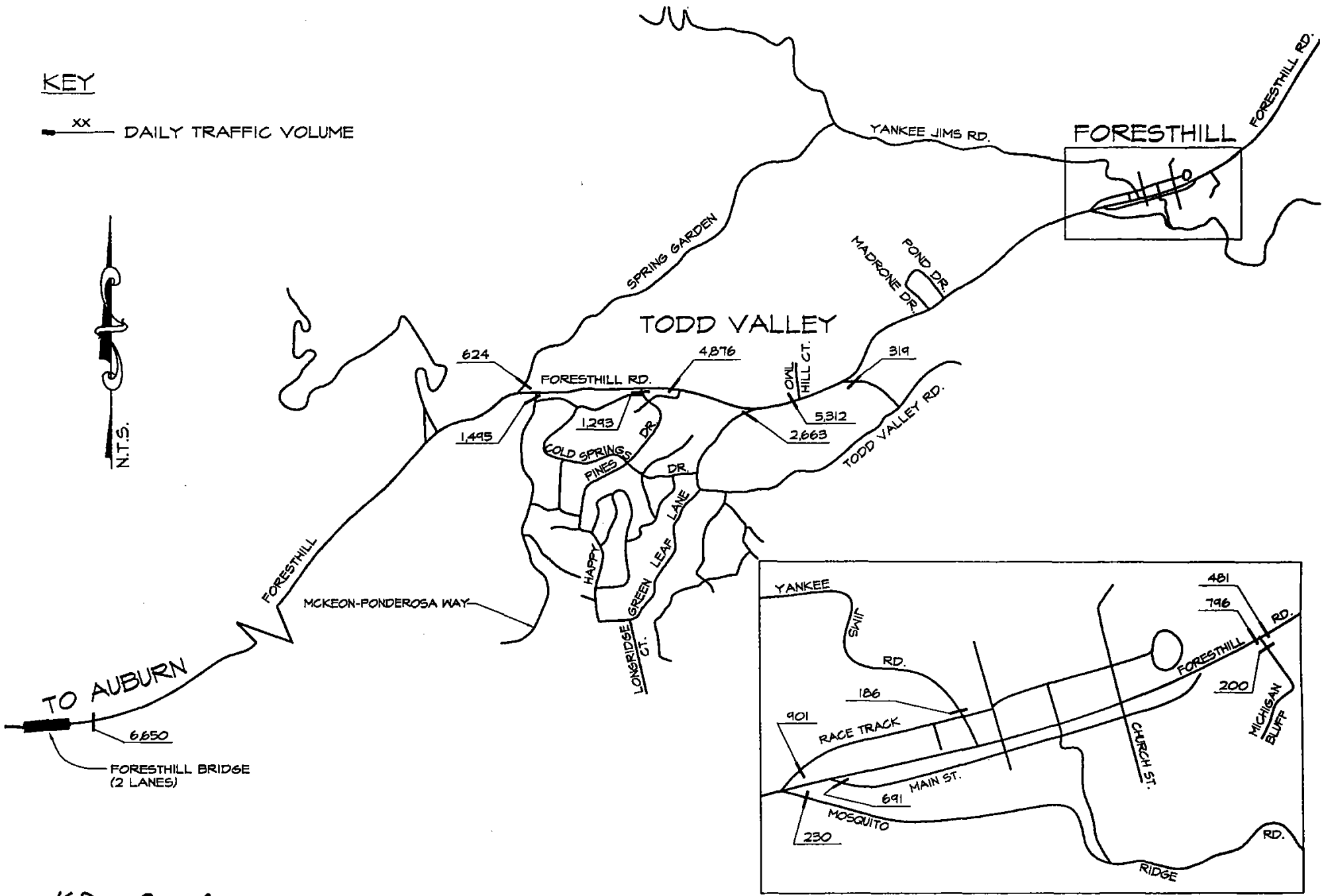
Bikeway/Pedestrian Facilities

Both the bikeway and pedestrian facilities within the Foresthill community are limited. Limited sidewalks exist in the downtown area and bicyclists are forced to share the roadways with motorist.

Airport Transportation

Foresthill is not served by a public/commercial airport. The closest airports to Foresthill are the Georgetown Airport and Auburn Municipal Airport.

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EXISTING DAILY TRAFFIC VOLUMES

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Figure 1

Rail Service

Foresthill is not served by freight or passenger rail services.

Tourist Traffic

Based on conversations with Forest Service staff, about 900,000 tourists visit the Tahoe National Forest each year. Forest service staff also indicated that the two main routes into the national forest (i.e., Foresthill Road east of the Foresthill Community and Mosquito Ridge Road) were utilized about equally and that while the summer tourist crowd is still larger than the winter tourist crowd, the number of patrons traveling during the winter is increasing rapidly. Based on information that the forest service staff provided and accounting for such factors as carpooling and weekend vs. weekday traffic, it was estimated that tourist traffic would account for a total of about 570 weekday trips on Foresthill Road between Auburn and Foresthill.

In the future, this tourist traffic to the Tahoe National Forest was assumed to double. This equates to a 3.5% growth rate per year over the next 20 years. Doubling of the tourist traffic was based on discussions with forest service staff, engineering judgment and subsequently discussed with County staff.

Accident Data

Placer County supplied accident data for the last three years. Specifically, the data that was available was for the most current period from 09-22-96 to 09-22-99. While additional data was available prior to these dates, accident data that is older than three years is typically not utilized. Table A in the Appendix summarizes the available accident data and lists those locations where the majority of accidents occurred on each roadway.

As shown in Table A, the majority of accidents in the Foresthill area occurred on Foresthill Road. A total of 116 accidents were reported within this three-year period. Of these 116 accidents, 13 were in the vicinity of Driver's Flat Road, with that number dropping slightly at Upper Lake and North Fork Ponderosa Way (12) and at Todd Valley Road (11). Most occurred under dry roadway conditions (75) or while the drivers were unimpaired (84). A total of 52 accidents resulted in objects being hit. A total of 3 people were killed and a total of 102 people were injured.

A total of 5 accidents were reported on Todd Valley Road. The majority occurred at Green Leaf Lane and resulted in one person being killed and 5 people being injured. The roadway was dry (4) when most of the accidents occurred. A total of 4 drivers were impaired and 4 of the accidents resulted in objects being hit.

On Spring Garden Road and Yankee Jim's Road a total of 3 accidents were reported, while Michigan Bluff Road had one accident within this three year time period.

PROJECT IMPACTS

Project Description

The Forest Ranch project is a planned residential development on 2,615 acres located north and east of the Community of Foresthill. The project site is currently zoned for residential under the existing 1981 Foresthill General Plan and Zoning Regulations. The project applicant is proposing a General Plan amendment and rezone to encompass development of a mixed used project. Figure 2 displays the project's conceptual site plan.

The project proponents envision construction of 2,213 residential units, of which 1,700 would be age restricted (i.e., 55 years of age or older) and the remaining 513 residential units will not be age restricted. Of these 513 non-age restricted homes, 216 units located behind the mill site are proposed to be townhomes. The non-residential uses include a golf course, office / professional uses, a recreational vehicle park, and an equestrian center.

Limited non-residential uses are proposed. The golf course is to include an 18-hole playing course, clubhouse, and other recreational facilities generally associated with a golf course in a retirement community (i.e., restaurants, meeting rooms, swimming pool, driving range, etc.). The golf course is located in the center of the project site.

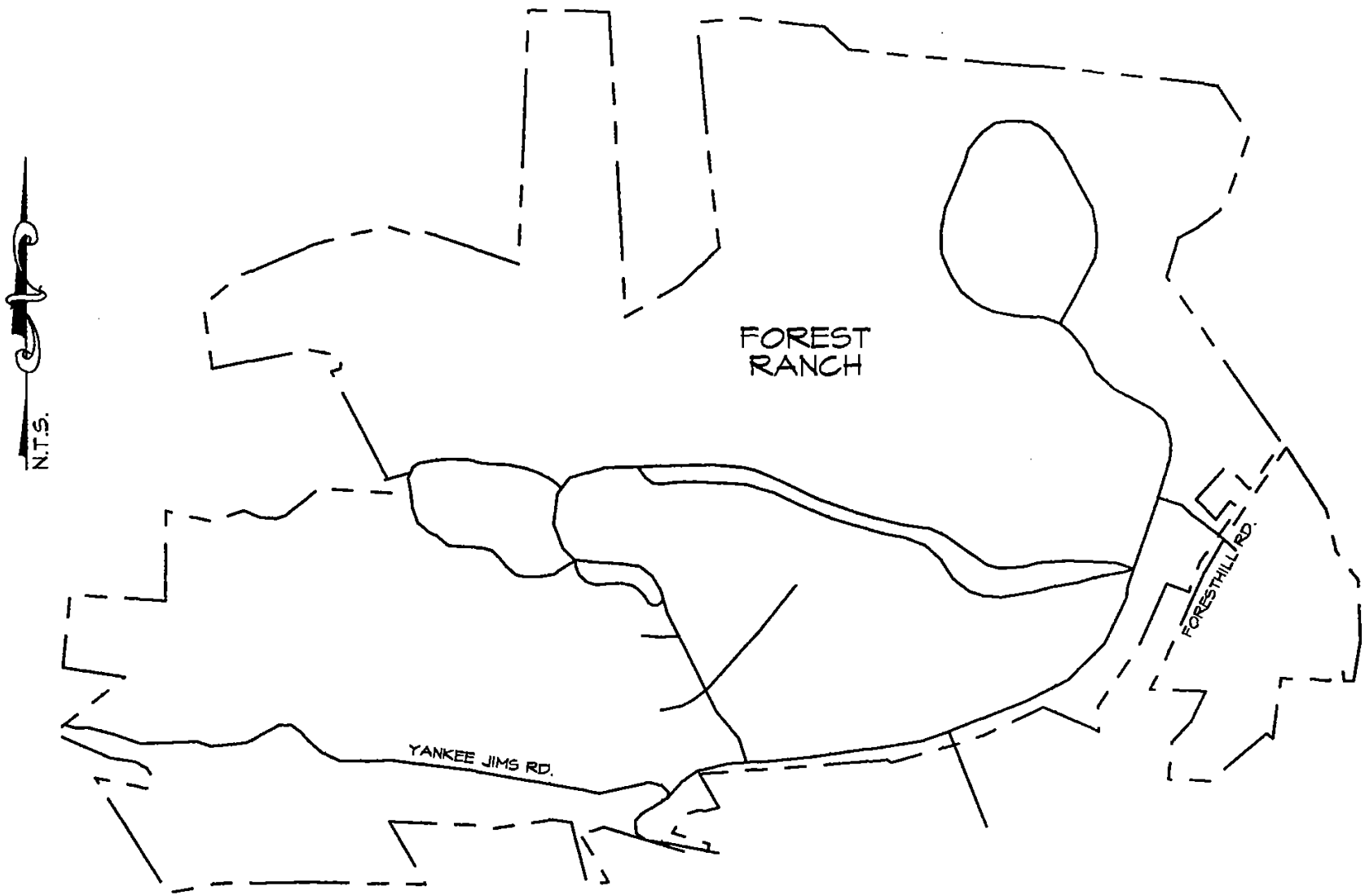
The office / professional uses will encompass approximately 5 acres at the southern end of the project site adjacent to Yankee Jim's Road. According to the project proponents, these five acres will develop as approximately 5,000 square feet of office/professional uses and 14,000 square feet of medical/dental uses.

Both the equestrian center and the RV Park are located at the northeastern most portion of the project site. The equestrian center is to provide for the boarding of horses and a staging area of the project's equestrian trail system. The project proponents estimate a total of 50 horses may use this facility. The recreational vehicle park will provide facilities for 100 recreational units.

As shown on the site plan, access to the project site is proposed via three locations onto Foresthill Road. The western most location accesses Foresthill Road via a connection to Yankee Jim's Road. The other two accesses are directly onto Foresthill Road.

Trip Generation

The number of automobile trips, which will be generated by development of the Forest Ranch project, has been estimated through application of published trip generation rates. These trip rates are presented in the Institute of Transportation Engineers' (ITE) Trip Generation, (Sixth Edition), the draft Foresthill Community Area Plan, other studies with similar land uses, and discussions with Placer County staff. The single-family trip generation rates were utilized for the townhomes as directed by Placer County staff. A detailed description of each of these trip generation rates is presented in Table B of the Appendix.



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SITE PLAN

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Figure 2

Table 4 presents the daily trip generation rates employed for this analysis. Table 5 presents the number of trips anticipated to be generated with development of the project.

TABLE 4
TRIP GENERATION RATES

Land Use	Units	Quantity	Daily Rate
Single Family	dus	297 dus	5.54 trips/du
Townhomes	dus	216 dus	5.54 trips/du
Retirement Community	dus	1,700 dus	2.94 trips/du
Golf course	hole	18 holes	28.60 trips/hole
Office / professional	ksf	5.0 ksf	26.6 trips/ksf
Medical/Dental	ksf	14.0 ksf	25.5 trips/ksf
Equestrian Center	horse	50 horses	0.699 trips/horse
Recreation Vehicle Park	Occupied space	100 spaces	3.33 trips/space

dus= dwelling units
ksf = 1,000 square feet

TABLE 5
TRIP GENERATION

Land Use	Quantity	Daily Trips
Proposed Project		
Residential		
Single Family/Townhomes	513 dus	2,842
(golf course match)		(80)
(office match)		(21)
(medical match)		(55)
(equestrian match)		(5)
net external		2,681
Retirement Community	1,700 dus	4,998
Total Gross Residential		7,840
Total Net External (Residential)		7,679
Non-Residential		
Golf course	18 holes	515
(2/3 internal match)		(343)
net external		172
Office / professional	5.0 ksf	133
(2/3 internal match)		(89)
net external		44
Medical/Dental	14.0 ksf	358
(2/3 internal match)		(239)
net external		119
Equestrian Center	50 horses	35
(2/3 internal match)		(23)
net external		12
Recreation Vehicle Park	100 spaces	333
Total Gross-Non Residential		1,374
Total Net External-Non-Residential		680
Gross Total Project Trips		9,214
Net External Site Project Trips		8,359

dus = dwelling units
ksf = 1,000 square feet

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Some of the trips generated by the project will remain on site as residential and non-residential trips will match. This on-site matching effectively reduces the number of trips that will be external to the site. An internal trip generation reduction, proportional to the percentage of single-family and townhome residences, was taken for internal matching of the non-residential portion of the site. However, no reduction in the number of trips generated by the retirement community housing was taken for internal matching, as the trip generation rates for retirement communities already account for internal matching to such uses as golfing, recreation centers, and small amounts of office and retail uses.

As shown in Table 5, the proposed project is anticipated to generate a total of 9,214 "gross" daily trips. Of these daily trips, a total of 8,359 daily trips are anticipated to be external to the project site and access the adjacent street system.

Trip Distribution

Having determined the number of trips anticipated to be generated by the proposed project, it is necessary to identify the directional distribution of project traffic. Table 6 presents the directional distribution of project trips. The directional distribution was based on the location of complementary land uses and from the draft Foresthill Community Plan.

Some of the project trips will remain internal to the site, others were assumed to match within the Foresthill Divide and others were assumed to be external to the community. These that match internally within the site add traffic to the internal roadway system for the project, but do not effect roadway traffic volumes that are external to the project site.

Of the "external" traffic that leaves the project site, the origins/destination is based on land use and the complimentary land uses in the Foresthill Community. A portion of the external residential project trips was assumed to match within the Foresthill Community. Under short term conditions, it was also assumed that the existing retail and office uses in the Foresthill Community would generate 25% more daily trips due to the increase in area patrons. This increase in existing patronage resulted in more of the external residential trips from the project matching existing uses in the Foresthill Community. However, even with this assumed increase in patronage, the existing Foresthill Community does not have sufficient non-residential development to accommodate an additional 2,213 residences as only about 15% of the external residential project trips match within the Foresthill Community.

The remainder of the residential trips generated by the project was assumed to be out of the community. As per the draft community plan, the residential trips that are projected to leave the community are anticipated to be primarily oriented to the west toward Auburn (95%) with the remaining trips heading eastward into the national forest (5%).

Patrons on the RV park were assumed to live out of the area. For the external non-residential uses, 90% were assumed to match within the Foresthill Community while the remaining 10% were assumed to be external. All of the external office/professional and medical/dental trips were also

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assumed to draw patrons from within the Foresthill Community. Table 6 presents the matching that is anticipated to occur within the Foresthill Community Divide from project trips that are external to the site.

TABLE 6
MATCHING WITHIN THE FORESTHILL COMMUNITY DIVIDE FOR DAILY TRIPS EXTERNAL TO PROJECT SITE

		Non-Residential		
Destination	**Residential**	**RV Park**	**Golf**	**Office/Professional Medical/Dental**
Internal to Foresthill Community	15%	-	90%	100%
External to Foresthill Community	85%	100%	10%	-
Total	**100%**	**100%**	**100%**	**100%**

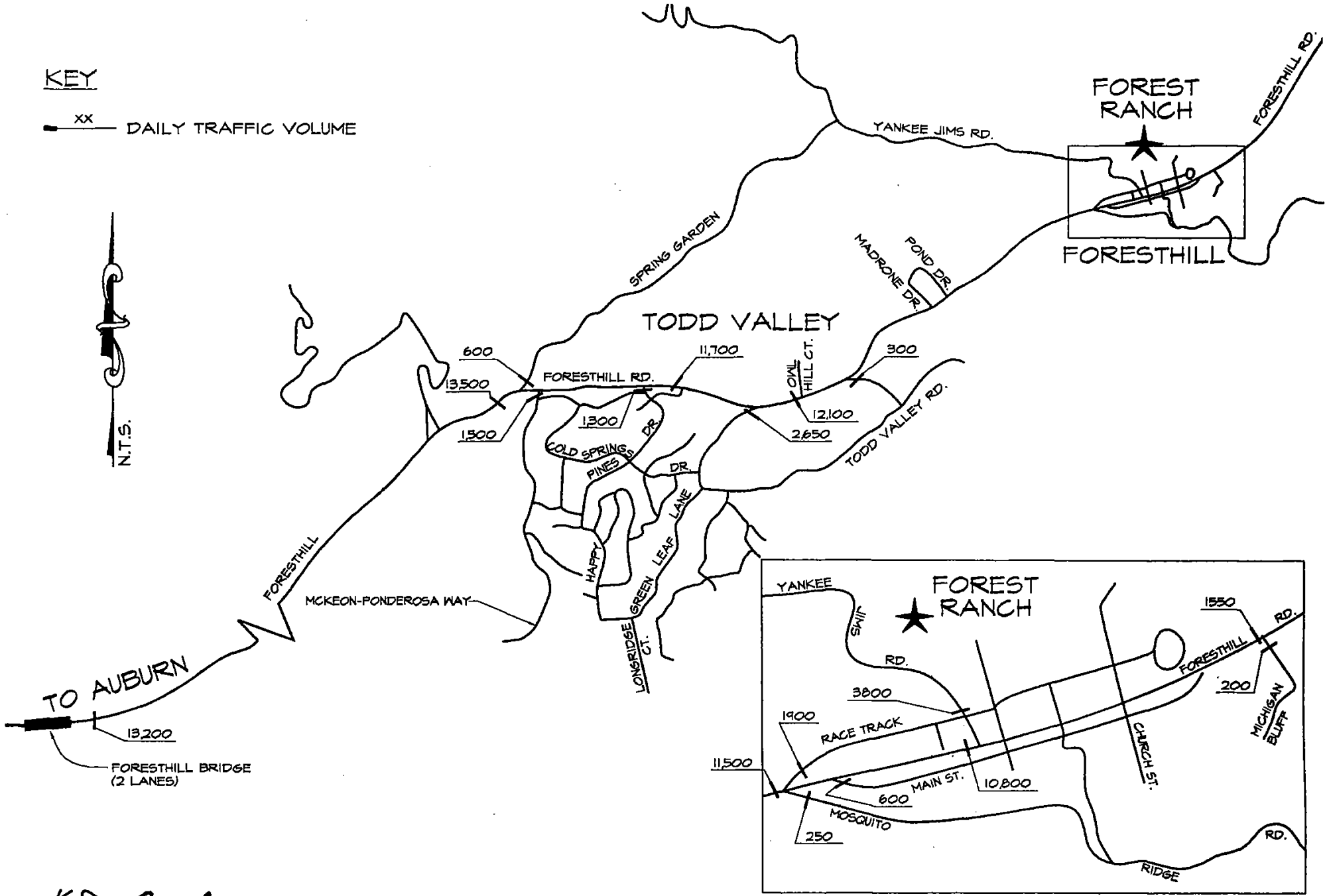
Existing Plus Project – Levels of Service

Using the directional distribution presented in Table 6, daily traffic generated by development of Forest Ranch was assigned to the adjacent street system. The assignment of project-generated trips was conducted considering proposed access locations and the quickest path available to the adjacent street system. Figure 3 displays the resulting "Existing plus Project" daily traffic volumes.

Level of Service Thresholds

With development of the Forest Ranch project, the proportion of senior housing within the Foresthill Community will increase. The increase in senior residents will in turn decrease the percentage of trips occurring during the peak hours as seniors tend to avoid traveling during rush hours. Change in the proportion of daily trips occurring during the peak hour directly affects the daily roadway thresholds as these thresholds were originally derived using a "standard" peak hour trip percentage. Based on County staff calculations, as verified by kdANDERSON Transportation Engineers, the daily capacity thresholds on Foresthill Road have been increased by 6.5% to account for this reduction of peak hour traffic occurring over the course of the day. Table 7 presents the daily thresholds that were previously developed and presented in Table 2 with the 6.5% increase in the daily capacity thresholds.

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EXISTING PLUS PROJECT DAILY TRAFFIC VOLUMES

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Figure 3

TABLE 7
EVALUATION CRITERIA FOR LEVEL OF SERVICE
ACCOUNTING FOR AGE RESTRICTED HOUSING IN FOREST RANCH

Roadway Capacity Class	Maximum Daily Traffic Volume Level of Service				
	A	B	C	D	E
1. Rural 2-lane-Rolling w/o Passing Lane	1,130	3,600	6,820	10,420	19,750
2. Rural 2-lane-Rolling w/39% Climbing Lanes	1,130	4,810	11,400	15,110	19,750
3. Rural 2-lane-Rolling w/40% Climbing Lanes	1,130	4,900	11,590	15,370	19,750
4. Rural 2-lane Rolling w/43% Climbing Lanes	1,130	5,180	12,190	16,160	19,750
5. Rural 2-lane Rolling w/71% Climbing Lanes	1,130	10,590	19,750	19,750	19,750
6. Rural 2-lane-Rolling (PCGP)	1,700	4,470	7,670	12,140	22,370
7. Rural 2-lane-Mountainous (PCGP)	850	2,560	4,470	7,200	14,910
8. Arterial - Low Access Control (PCGP)	7,460	11,190	12,780	14,630	15,980

Source: Placer County GP, Placer County staff, kdANDERSON Transportation Engineers, based upon Highway Capacity Manual, Transportation Research Board, 1985.

Table 8 presents the resulting traffic volumes and the corresponding levels of service for the study area roadways. As a basis for comparison, the existing daily traffic volumes are also shown. Where new daily counts were not available, we have utilized older counts as a basis for comparison.

As shown, development of the project is anticipated to result in substantial increases on study area roadways. Foresthill Road between the Foresthill Bridge and Spring Garden Road is projected to deteriorate to LOS "D" operations with development of the project. The county's current policy requires LOS "C" operations be maintained on Foresthill Road between Auburn and the Idle Wheels Mobile Home Park. Therefore, this would be considered a significant impact.

Projected daily roadway volumes were also compared to the daily traffic warrant contained in the Traffic Manual to determine if traffic signals would eventually be needed at any of the intersections within the study area. Based on these daily volumes, five (5) intersections are projected to meet warrants for signalization with development of the project. This is considered a significant impact. These five (5) intersections include:

1. Foresthill Road/McKeon-Ponderosa Way
2. Foresthill Road/Happy Pine Drive Sr
3. Foresthill Road/Todd Valley (West)
4. Foresthill Road/Yankee Jim's Road
5. Foresthill Road/Race Track Street

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TABLE 8
EXISTING AND EXISTING PLUS PROJECT
DAILY ROADWAY TRAFFIC VOLUMES AND LEVELS OF SERVICE

Roadway	Location	Criteria	Existing			Existing + Project		
			LOS C Threshold	Daily Traffic	LOS	LOS C Threshold	Daily Traffic	LOS
Foresthill Road	Foresthill Bridge to Drivers Flat Rd	Rural w/39% climbing	10,710	6,650	C	11,400	13,200	D
Foresthill Road	Drivers Flat Rd to Spring Garden Rd	Rural w/40% climbing	10,880	6,800	C	11,590	13,500	D
Foresthill Road	Spring Garden Rd to Todd Valley Rd (W)	Rural w/71% climbing	18,540	4,876	B	19,750	11,700	C
Foresthill Road	Todd Valley (W) to Idle Wheels Mobile Home Park	Rural w/43% climbing	11,450	5,312	C	12,190	12,100	C
Foresthill Road	Idle Wheels Mobile Home Park to Mosquito Ridge	Arterial	12,000	4,800	A	12,780	11,500	C
Foresthill Road	Mosquito Ridge Rd to Yankee Jim's Rd	Arterial	12,000	3,950	A	12,780	10,800	B
Foresthill Road	Yankee Jim's Rd to Blackhawk Ln	Arterial	12,000	2,000	A	12,780	6,200	A
Foresthill Road	Blackhawk Ln to Ebberts Ranch Rd	Arterial	12,000	1,300	A	12,780	1,550	A
Foresthill Road	Ebberts Ranch Rd to Michigan Bluff Rd	Arterial	12,000	796	A	12,780	1,150	A
Foresthill Road	E. of Michigan Bluff Rd	Arterial	12,000	481	A	12,780	850	A
McKeon-Ponderosa	S of Foresthill Rd	Rural w/out passing	6,400	1,495	B	6,820	1,500	B
Spring Garden Rd	N of Foresthill Rd	Rural-Mountainous	4,200	624	A	4,470	625	A
Happy Pines Dr	S of Foresthill Rd	Rural w/out passing	6,400	1,293	B	6,820	1,300	B
Todd Valley Rd (W)	S of Foresthill Rd	Rural w/out passing	6,400	2,663	B	6,820	2,650	B
Todd Valley Rd (E)	S of Foresthill Rd	Rural w/out passing	6,400	319	A	6,820	300	A
Mosquito Ridge Rd	S of Foresthill Rd	Rural-Mountainous	4,200	230	A	4,470	250	A
Yankee Jim's Rd	N of Race Track St	Rural-Mountainous	4,200	186	A	4,470	3,800	C
Main Street	S of Foresthill Rd	Arterial	12,000	691	A	12,780	600	A
Michigan Bluff Rd	S of Foresthill Rd	Rural w/out passing	6,400	200	A	6,820	200	A
Race Track St	N of Foresthill Rd	Arterial	12,000	901	A	12,780	1,900	A

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FUTURE CONDITIONS

In the future, the Foresthill Community Plan will govern development on the divide. Currently, the Foresthill Community Plan is a draft and has not been adopted yet. However, based on direction from Placer County staff, the "Future Base" condition consists of development of the Community Plan.

Future Circulation System

In addition to the existing roadway system, the draft Foresthill Community Plan Circulation Element includes several new roadways. These roadways include: 1) a new connection between Yankee Jim's Road and the new high school site, 2) an upgrade and extension of Power Line Road between Spring Garden in the west to Foresthill Road in the east near the vicinity of the new high school, and 3) the extension of Patent Road from its' current terminus just east of Todd Valley Road to Mosquito Ridge Road in the east in addition to upgrading the existing section of Patent Road east of Green Ridge Drive. All of these newly planned roadways were assumed to be included as part of the future circulation system.

Future Development

The Foresthill Community Plan area was assumed to have developed under the future base condition. At build out of the Community Plan, a total of 4,333 dwelling units are anticipated to exist within the Foresthill Divide. As discussed by Placer County staff, this total dwelling unit count within the Foresthill Community includes a 20% overall reduction in "build out" of residential housing based on anticipated development levels. The non-residential portion of development entails construction of 35 acres of retail, 60 acres of office/professional uses, 70.5 acres of industrial uses, and a 400-student high school.

When the Forest Ranch project develops, the County envisions additional non-residential development will occur in the downtown area beyond those non-residential uses assumed in the Foresthill Community Plan. Based on direction from County staff, we have assumed that an additional 70,262 square feet of retail uses and 60,184 square feet of office/professional uses will develop under the "Plus Project" scenario in response to the increase in residences in the Forest Ranch project.

Under the "plus Project" condition, the Forest Ranch project is proposing limited office/professional uses. As the amount of "additional" non-residential uses that were assumed under the "Future plus Project" conditions were derived from the proportion of residents in the Foresthill Community Plan and the number of residents in the Forest Ranch project site, the office uses proposed in the Forest Ranch project were deducted from the estimated future non-residential uses. Therefore, a total of 41,184 square feet of additional office uses will develop in the future.

Trip Generation

Site Development Under the Draft Foresthill Community Plan. Overall, development of the draft Foresthill Community Plan, which is being updated, was anticipated to result in a total of 12,918 trips from the residential uses and a total of 8,444 new daily trips from the non-residential uses. Accounting for the match within the community plan area, a total of 4,474 trips are external to the plan area.

Community Development with the Proposed Project. On the project site itself, a total of only 366 single-family dwelling units were assumed to develop under the draft Foresthill Community Plan due to the 20% reduction mentioned previously. Under the Community Plan development scenario, the project was anticipated to generate a total of 2,027 daily trips with 1,323 trips matching within the Foresthill Community and 704 trips being external to the Foresthill Community. As these 2,027 daily trips were already accounted for in the daily traffic projections in the Foresthill Community Plan Area traffic analysis, the daily traffic generated by the project was reduced accordingly to account for this development already assumed on the project site.

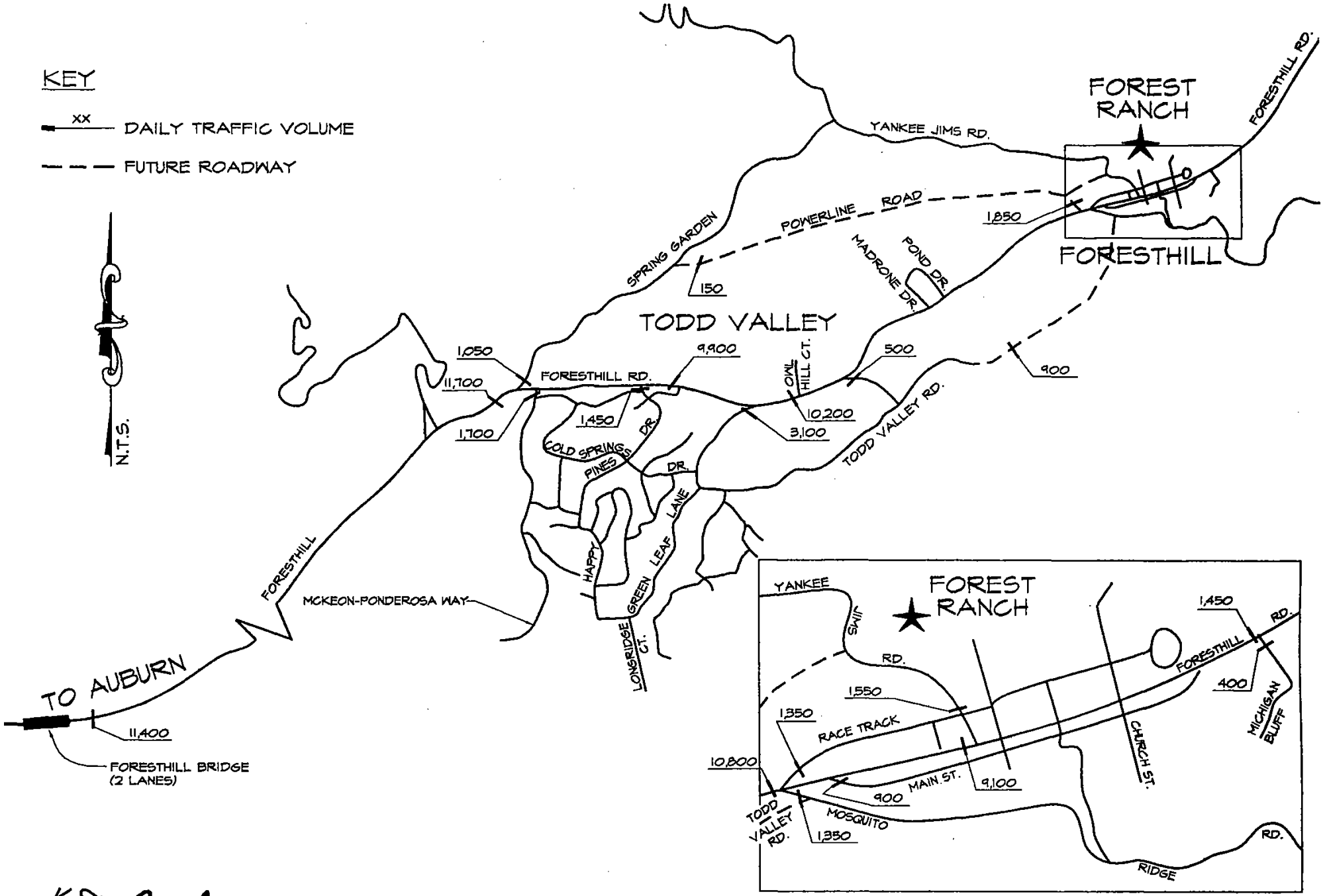
Under the "Plus Project" condition, trip generation was calculated for the additional "net" non-residential uses that the County envisioned. Based on discussion with County staff, the parcels where the additional retail could develop are small and disjointed. Therefore, as the additional 70,262 square feet of retail would develop on smaller retail sites at many different locations, specialty retail rates were utilized. As for the retail in the Foresthill Community Plan, a 20% passby reduction was applied. A total of 2,377 new trips results from this retail portion of new development.

As no "specific" uses were identified for the office / professional portion of this future development, it was assumed that half of the 41,184 square fee would develop as general office uses while the other half would develop as medical/dental uses. The trip generation rates utilized for these office/professional and medical/dental land uses were the same as those utilized for the project site. A total of 1,099 new trips results from this office portion of future development. Added to the new retail trips, a total of 3,476 new non-residential trips were anticipated in the downtown area under the "Plus Project" scenario.

Trip Distribution and Assignment

The net difference in residential project trips and future "new" non-residential trips were assigned onto the adjacent street system. As for the Foresthill Community Plan Area traffic study, trip distribution was based on existing travel patterns and the distribution of the existing and future development in the area. As part of the distribution and assignment process of the project generated traffic, the traffic generated by other development within the Community Plan area was also redistributed to account for the additional area interaction that would occur with development of the project. In other words, project trips were assumed to match uses within both the new non-residential development and the Community Plan. Figure 4 displays the resulting daily traffic volumes on the study area roadways. Figure 5 displays the "Future plus Project" projections.

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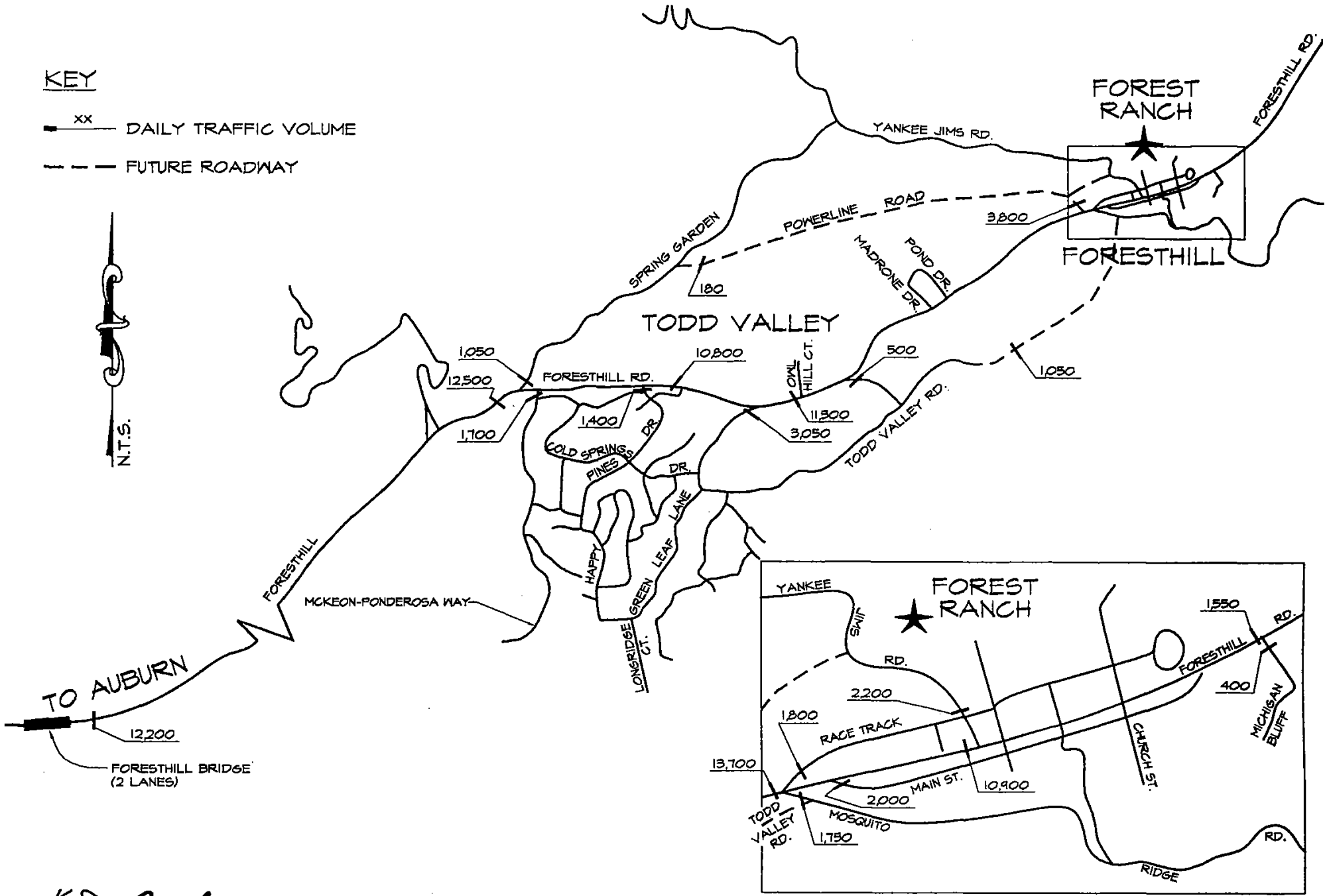


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FUTURE DAILY TRAFFIC PROJECTIONS

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Figure 4



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FUTURE PLUS PROJECT PLUS ADDITIONAL NON-RESIDENTIAL DEVELOPMENT DAILY TRAFFIC PROJECTIONS

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Figure 5

Roadway Levels of Service

The resulting future daily traffic projections on the study roadways are presented in Table 9. The future base daily traffic projections were compared to the level of service criteria that was previously developed for the study area roadways from the draft Foresthill Community Plan. As shown in Table 9, two sections of Foresthill Road are projected to operate at LOS "D" which is considered a significant impact under the draft Foresthill Community Plan.

With the development of the project site, additional traffic is added to the study area roadways. The two roadway segments on Foresthill Road are expected to continue LOS "D" operations. In addition, the Foresthill Road segment between the Idle Wheels Mobile Home Park and Mosquito Ridge Road is projected to deteriorate to LOS "D" operations. However, since the County has adopted LOS "D" on this section of roadway, projected operations meet County standards and therefore no improvements are needed as a result of project development.

Future Signal Warrants

Projected daily roadway volumes were compared to the daily traffic warrant contained in the Caltrans Traffic Manual to determine if traffic signals would eventually be needed at any of the intersections within the study area. Based on these daily traffic projections, three (3) intersections are projected to meet warrants for signalization under the future base conditions, which is considered a significant impact under the draft Foresthill Community Plan. These three intersections include:

1. Foresthill Road/McKeon-Ponderosa Way
2. Foresthill Road/Todd Valley Road (West)
3. Foresthill Road/Powerline Road

Under the "Plus Project" scenario, the Foresthill Road/Race Track Street and the Foresthill Road/ Mosquito Ridge Road intersections also meet daily warrants for signalization, which is considered a significant impact.

Transit Service

When the draft Foresthill Community Plan fully develops, the need for an additional bus or a change in bus routes may exist. A short and/or long range transit study should be conducted to determine future needs.

This need for future transit services will be further exacerbated with development of the project and the additional retail and office development that was assumed to occur under the "Plus Project" scenario. This is considered a significant impact. The demand for transit services should be monitored via the transit study and when the need arises, an additional bus should be added to serve the Foresthill Community Plan area. Alternatively, the Forest Ranch project could be responsible for providing a bus to serve the residents of their project. However, this is not recommended as

similar programs for senior developments (such as Del Webb) were not successful and were terminated due to lack of rider ship.

In addition, additional stops near the major traffic generators may also be needed within the Foresthill Community. Implementation of the draft Community Plan Policy 5.5-4 relating to transit should also occur. This policy requires developments of 100 or more residential units to provide sheltered public transit stops, with turnouts where appropriate. Therefore, a shelter will also be required within the project site itself.

Park and Ride Lot

Currently, Foresthill does have a designated park and ride lot. Installation of expanded park and ride lot or another park and ride lot would provide motorists wishing to ride share and/or ride transit a central place to meet and leave their vehicles.

Development of the project site would potentially result in the need for additional park and ride spaces. This is considered a significant impact. The draft Community Plan Policy 5.5-3 states that new developments of 100 residential units or more shall provide public carpool parking facilities. Therefore, the project will be responsible for providing a public carpool parking facility. Installation of such lots should be centrally located to be serviced by transit. These facilities should also be utilized for overflow parking and staging areas for community events.

Bikeway/Pedestrians

With development of the Community Plan area, the need for both bikeway and pedestrian facilities will increase that will be further exacerbated with project development. This is considered a significant impact under the draft Foresthill Community Plan and under the "plus project' condition. A bikeway master plan should be developed which includes the project site. In addition, a trail master plan could also be developed. Under the base condition, the Foresthill Community Plan policies relating to bicycle and pedestrian facilities should be implemented. In addition, the draft Foresthill Community Plan Area update called for implementation of a number of policies in which the project should contribute its' fair share.

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TABLE 9
FUTURE BASE AND FUTURE PLUS PROJECT CONDITIONS
DAILY ROADWAY TRAFFIC VOLUMES AND LEVELS OF SERVICE

Roadway	Location	Criteria	Future Base			Future Plus Project		
			LOS C Threshold	Daily Traffic	LOS	LOS C Threshold	Daily Traffic	LOS
Foresthill Road	Foresthill Bridge to Drivers Flat Rd	Rural w/39% climbing	10,710	11,400	D	11,400	12,200	D
Foresthill Road	Drivers Flat to Spring Garden Rd	Rural w/40% climbing	10,880	11,700	D	11,590	12,500	D
Foresthill Road	Spring Garden to Todd Valley (W)	Rural w/71% climbing	18,540	9,900	C	19,750	10,800	C
Foresthill Road	Todd Valley (W) to Idle Wheels Mobile Home Park	Rural w/43% climbing	11,450	10,200	C	12,190	11,500	C
Foresthill Road	Idle Wheels Mobile Home Park to Mosquito Ridge Rd	Arterial	12,000	10,800	C	12,780	13,700	D
Foresthill Road	Mosquito Ridge to Yankee Jim's Rd	Arterial	12,000	9,100	B	12,780	10,900	B
Foresthill Road	Yankee Jim's Rd to Blackhawk Ln	Arterial	12,000	6,300	A	12,780	9,100	B
Foresthill Road	Blackhawk Ln to Ebberts Ranch Rd	Arterial	12,000	3,050	A	12,780	3,150	A
Foresthill Road	Ebberts Ranch to Michigan Bluff	Arterial	12,000	1,450	A	12,780	1,550	A
Foresthill Road	E. of Michigan Bluff Rd	Arterial	12,000	1,100	A	12,780	1,150	A
McKeon-Ponderosa	S. of Foresthill Rd	Rural w/out passing	6,400	1,700	B	6,820	1,700	B
Spring Garden Rd	N. of Foresthill Rd	Rural-Mountainous	4,200	1,050	B	4,470	1,050	B
Happy Pines Dr	S. of Foresthill Rd	Rural w/out passing	6,400	1,450	B	6,820	1,400	B
Todd Valley Rd (W)	S. of Foresthill Rd	Rural w/out passing	6,400	3,100	B	6,820	3,050	B
Todd Valley Rd (E)	S. of Foresthill Rd	Rural w/out passing	6,400	500	A	6,820	500	A
Mosquito Ridge Rd	S. of Foresthill Rd	Rural-Mountainous	4,200	1,350	A	4,470	1,750	B
Yankee Jim's Rd	N. of Race Track St	Rural-Mountainous	4,200	1,550	B	4,470	2,200	B
Main St	S. of Foresthill Rd	Arterial	12,000	900	A	12,780	2,000	A
Michigan Bluff Rd	S. of Foresthill Rd	Rural w/out passing	6,400	400	A	6,820	400	A
Race Track St	N. of Foresthill Rd	Arterial	12,000	1,350	A	12,780	1,800	A
Todd Valley Connection	Between Todd Valley and Foresthill	Rural w/out passing	6,400	900	A	6,820	1,050	A
Spring Garden Connection (Powerline Rd)	E. of Spring Garden Rd	Rural-Mountainous	4,200	150	A	4,470	150	A
Spring Garden Connection (Powerline Rd)	N. of Foresthill Rd adjacent to high school	Arterial	12,000	1,850	A	12,780	3,800	A

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Traffic Impact/Mitigation Summary

Development of the project results in increased traffic throughout the Foresthill Community Plan area. Under the "Existing plus Project" condition and under both future scenarios, impacts result as the circulation system does not have enough available capacity to accommodate the anticipated levels of development.

The text that follows provides a summary of the traffic impacts and the improvements that would be required on area roadways and intersections.

Foresthill Road

Existing Plus Project Impacts. Under the "Existing plus Project" condition, Foresthill is projected to operate at LOS "D" from Auburn to Spring Garden Road. As the draft Community Plan Policy 5.1-1 requires LOS "C" operations be maintained on Foresthill Road between Auburn and the Idle Wheels Mobile Home Park, this is considered a significant impact.

Draft Foresthill Community Plan Impacts. With implementation of the draft Foresthill Community Plan, the resulting level of service on Foresthill Road is "D" on the section that lies west of Spring Garden Road to Foresthill Bridge. As the draft Community Plan Policy 5.1-1 requires LOS "C" operations be maintained on Foresthill Road between Auburn and the Idle Wheels Mobile Home Park, this is considered a significant impact.

Draft Community Plan Plus Project Plus Additional Non-Residential Development Impacts. With development of the project and the additional off-site retail office uses, traffic projections on study area roadways are projected to increase. However, operations on Foresthill Road between Auburn and Spring Garden Road are projected to remain at LOS "D".

Mitigations

Under the "Existing plus Project", "Future Base", and "Future plus Project plus Additional Non-Residential Development" conditions, reduction of the overall amount of traffic traveling between Auburn and the Foresthill Community Plan Area will be required to meet the County's current LOS "C" policy on Foresthill Road between Auburn to the Idle Wheels Mobile Home Park.

If the County is willing to accept LOS "D" operations on Foresthill Road from Auburn to the Idle Wheels Mobile Home Park, then no reduction in planned development would be needed, as operations on Foresthill Road are not anticipated to exceed LOS "D" operations.

If the County is not willing to accept LOS "D" on these two study sections of Foresthill Road, then a reduction of housing on the divide will be required to reduce the amount of external traffic leaving the area on Foresthill Road. Alternatively, more non-residential uses could be constructed within the community in order to decrease the amount of daily traffic that is traveling on Foresthill Road between Auburn and Foresthill Community.

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The County has previously inquired as to the amount of development that could occur within the Foresthill Community Plan area that could be accommodated by Foresthill Road (i.e., LOS "C" operations). Based on daily roadway capacity thresholds, reduction of about 800 daily trips on Foresthill Road is needed in order to meet the County's existing LOS "C" policy. As a general note, each house is projected to generate 5.54 daily trips, of which about 95% of those trips that do not match within the Foresthill Community, are anticipated to be traveling between Auburn and Foresthill. Therefore, if about 160 less homes were to develop, a total of about 850 less daily trips would result on Foresthill Road between Auburn and Foresthill. This reduction in residential development would yield LOS "C" operations on the two impacted sections of Foresthill Road under the current draft Foresthill Community Plan development proposal.

If LOS "C" operations were to be maintained on these two impacted sections of Foresthill Road under the "Plus Project Plus Additional Non-Residential Project" development scenario, a further reduction in the proposed housing would be required. Under the "Future plus Project Plus Additional Non-Residential" development condition, the future traffic projections on Foresthill Road would need to be reduced by a total of about 910 daily trips. This 910 ADT reduction would equate to a development reduction of about 175 less single-family homes (920 ADT) or about another 15 less single family homes (85 ADT) beyond those needed under the future base scenario. Alternatively, the project proponents could propose to reduce the number of age restricted homes. However, a total of about 35 age restricted homes (about 100 ADT) would be required to reduce the daily traffic projections on Foresthill Road and offset about the same number of daily trips projected on Foresthill Road.

Under the "Existing plus Project" condition, daily roadway projections on the two sections of Foresthill Road are substantially higher than under the future scenario (i.e., further above the LOS "C" threshold). In order to maintain LOS "C" on these two impacted sections of Foresthill Road, the daily traffic volume on Foresthill Road would need to be reduced by about 1,900 daily trips. This ADT reduction equates to development of about 365 less single family/townhouses or about 685 less age restricted homes being able to develop on the divide.

The County has also inquired to the feasibility of adding additional passing lanes on Foresthill Road in order to increase the capacity and provide LOS "C" operations. Increasing the passing lane percentage to 39% from 43% would eliminate the roadway LOS "D" operations on the 5.6 mile Foresthill Road between the Foresthill Bridge and Drivers Flat Road under the "Future" base and "Future plus Project" conditions. However, in order to achieve 43% passing lanes on this uphill section of Foresthill Road, an additional 0.22 miles of passing lanes (or a 4% increase) are required. On the section of Foresthill Road between Drivers Flat Road and Spring Garden Road, a total of 45% passing lanes would be needed on this uphill section in order to achieve LOS "C" operations under the future condition. This 5% increase in passing lanes would equate to the need for an additional 0.24 miles of passing lane on this 4.84-mile segment.

Based on field observations, most of the uphill sections already have passing lanes. Those sections that do not have passing lanes are either: 1) located within rugged terrain that would require expensive cut and fill in order to add additional pavement width, or 2) do not have sufficient

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shoulder width over long stretches of roadway which could easily be converted into additional passing lanes. Therefore, based on field observations, adding another 4% to 5% passing lanes on Foresthill Road between the Foresthill Bridge and Driver's Flat Road and between Driver's Flat Road to Spring Garden Road may not be economically feasible. With development of the project, additional passing lanes beyond those previously identified would be needed as LOS "D" operations would continue to exist.

While not needed from a capacity standpoint, installation of a center two-way left turn on Foresthill Road from the Todd Valley area through the downtown area is recommended as it will improve traffic flow during peak periods. This center two way left turn will improve safety by providing left turning motorists a refuge area to wait for the next available gap out of the through traffic flow on Foresthill Road, thus allowing through traffic to continue its progression. Installation of this improvement may also result in less rear end accidents that could be avoided by providing left turning motorists a refuge area out of the thru travel lane.

Intersections

Existing Plus Project Impact. Development of the project site would result in the Foresthill Road/McKeon-Ponderosa Way, Foresthill Road/Happy Pines Drive, Foresthill Road/Todd Valley Road (West), Foresthill Road/Yankee Jim's Road, and the Foresthill Road/Race Track Street intersections meeting daily traffic warrants for signalization. This is considered a significant impact.

Draft Community Plan Impact. Under the Draft Community Plan, the Foresthill Road/McKeon-Ponderosa Way, Foresthill Road/Todd Valley Road (West), and Foresthill Road/ Powerline Road intersections are projected to meet daily warrants for signalization. This is considered a significant impact.

Draft Community Plan Plus Project Plus Additional Non-Residential Development Impact. Under this scenario, the Foresthill Road/Race Track Street and the Foresthill Road/Mosquito Ridge Road intersections are projected to meet daily warrants for signalization. This is considered a significant impact.

Mitigations. Install traffic signals when signal warrants are met. The draft Foresthill Community Plan Policy 5.6-1 states that if traffic signals become necessary on Foresthill Road, utilize control mechanisms that minimize the delay of through traffic, especially during non-commute hours.

Roundabouts are an alternative to signalization and often minimize traffic delays resulting from signalization. County staff indicated that a detailed roundabout analysis was not currently needed, and that not all intersections are good candidates for signalization.

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APPENDIX

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TABLE A

ACCIDENT DATA SUMMARY FOR FREQUENT ACCIDENT LOCATIONS

Roadway (Total Accidents)	Location	# of Accidents	# Injured	Occurrence	Roadway Surface Conditions		Was Driver Impaired?		Type of Collision	
Foresthill Road (116)	Drivers Flat	13	6 Injured	1	Dry	75	No	84	Hit Object	52
	Upper Lake	12	5 Injured	1	Wet	25	Yes	21	Broadside	14
	NF Ponderosa	12	4 Injured	2	Snowy/Icy	15	Unknown	9	Rear end	14
	Todd Valley	11	3 Injured	9			Sleepy or Fatigued	2	Overturn	11
	Lincoln Way	8	2 Injured	9					Sideswipe	11
	Lake Clemente	7	1 Injured	38					Other	8
	Old Auburn-Foresthill	5	1 Killed	3					Head on	6
Todd Valley Rd (5)	Green Leaf	3	4 Injured	1	Dry	4	Yes	4	Hit Object	4
	Foresthill	1	1 Injured	1	Wet	1	No	1	Other	1
	Mouganberry	1	1 killed	1						
Spring Garden (3)	Foresthill	2	1 Injured	2	Dry	3	No	3	Hit Object	2
	Owl Creek	1							Broadside	1
Yankee Jim's (3)	Canyon Way	1	1 Injured	2	Dry	2	Yes	2	Overturned	2
	Foresthill	1			Wet	1	No	1	Hit Object	1
	Spring Garden	1								
Michigan Bluff (1)	Foresthill	1	1 Injured	1	Dry	1	No	1	Hit Object	1

TABLE B DAILY TRIP GENERATION RATES FOR FOREST RANCH	
Land Use Quantity	**Source**
Single Family	Circulation element in the Foresthill Community Plan Area Update. These rates included a 20% reduction for the rural characteristic of the Foresthill Community.
Retirement Community	Bickford Ranch EIR with 20% reduction for rural characteristics in the Foresthill Community.
BP	Institute of Transportation Engineers Trip Generation, Sixth Edition. No reduction taken for rural characteristics.
Medical / Dental Office	Institute of Transportation Engineers Trip Generation, Sixth Edition. No reduction taken for rural characteristics.
Golf Course	Institute of Transportation Engineers Trip Generation, Sixth Edition. No reduction taken for rural characteristics, as most of the patrons will be from area players.
Equestrian Center	Traffic Impact Assessment for The Springs Equestrian Center.
Recreational Vehicle Park	Traffic Impact Analysis for Collins Lake Expansion.

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Appendix I

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CONSULTING ENGINEERS

Draft
Supplemental Traffic Analysis

Forest Ranch
Placer County, California

Prepared For
Quad Knopf

November 20, 2003

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EXECUTIVE SUMMARY

This report describes a supplemental traffic analysis for the proposed Forest Ranch project in Placer County, California, particularly relating to the four key intersections in the vicinity of the I-80/Auburn Ravine Road/Foresthill Road interchange as well as the freeway facilities at that interchange. This analysis specifically reflects input received from Caltrans, District 3 in a January 28, 2002 letter from Jeffrey Pulverman, Chief - Office of Regional Planning. Further, it supplements a previous study that addressed daily traffic operations in the vicinity of the proposed project (Reference: kdANDERSON Transportation Engineers, *Forest Ranch DEIR Transportation and Circulation Element*, September 30, 2003).

The proposed Forest Ranch project would include the following land uses on a 2,615-acre site:

- Single-Family Detached Residential – 297 dwelling units (DU);
- Townhome Residential – 216 DU;
- Retirement Community – 1,700 DU (restricted to persons 55 years of age and older);
- Office/Professional – 5,000 square feet (SF);
- Medical/Dental Office – 14,000 SF;
- Recreational Vehicle (RV) Park – 100 units;
- Golf Course – 18 holes; and
- Equestrian Center – 50 horses.

This study evaluated AM and PM peak hour traffic operations under existing conditions and PM peak hour operations under cumulative conditions. The analysis employed an intersection operations standard of significance defined by Caltrans (LOS D), which is more stringent than the LOS E standard established by Placer County. Impacts of the plan were evaluated at the following four key intersections:

- Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp;
- Auburn Ravine Road/I-80 Westbound Off-ramp;
- Auburn Ravine Road/I-80 Eastbound Ramps; and
- Auburn Ravine Road/Foresthill Road/Lincoln Way.

In addition, the study analyzed operations on the I-80 freeway mainline and at the ramp junctions at the Auburn Ravine Road/Foresthill Road interchange.

The key findings and recommendations resulting from the analysis are summarized below.

Existing Conditions

- All four study intersections operate at acceptable levels of service (i.e., LOS D or better) during the AM and PM peak hours.
- The I-80 mainline and the freeway ramp junctions also operate at acceptable levels of service.

Existing + Project Conditions

- Implementation of the proposed Forest Ranch project will generate 428 AM peak hour trips (147 inbound/eastbound and 281 outbound/westbound) and 627 PM peak-hour trips (380 inbound/ eastbound and 247 outbound/westbound) on Foresthill Road east of the study area addressed in this report.
- With the addition of the project-generated trips to the four study intersections, all of those locations will continue to operate at LOS D or better, thereby meeting the level of service standard employed in this analysis.
- The I-80 freeway mainline and the ramp junctions in the study area will also continue to operate at acceptable levels of service.
- No mitigation measures are necessary in connection with Existing + Project conditions.

Cumulative Conditions Analysis

- PM peak-hour traffic volume estimates for cumulative conditions were developed using year 2020 forecasts provided by Placer County Department of Public Works staff and information presented in the *Forest Ranch DEIR Transportation and Circulation Element.*
- Placer County has programmed several roadway improvements that are expected to be implemented at the I-80/Auburn Ravine Road/Foresthill Road interchange prior to the year 2020. Those improvements are assumed in both cumulative conditions analysis scenarios.
- Under Cumulative No Project conditions (reflecting the level of development and related traffic volumes associated with the revised version of the Foresthill Divide Community Plan, which is currently being updated), all four study intersections will operate at LOS D or better; therefore, all will be at acceptable levels of service.
- The I-80 freeway mainline will operate at LOS C or better and the freeway ramp junctions will be at LOS D or better under Cumulative No Project conditions.
- Based on information presented in the *Forest Ranch DEIR Transportation and Circulation* Element (kdANDERSON Transportation Engineers, September 30, 2003), under Cumulative + Project conditions the proposed Forest Ranch project will generate a total of 76 PM peak hour trips through the study area (46 inbound/eastbound and 30 outbound/westbound). The relatively low number of such trips is associated with the expected growth of non-residential land uses within the Foresthill community, which will allow a greater proportion of the residents' needs to be satisfied locally.
- All four study intersections will operate at acceptable levels of service (i.e., LOS D or better) under this scenario.
- The freeway mainline and the freeway ramp junctions will also operate acceptably under Cumulative + Project conditions.
- No mitigation measures are necessary under cumulative conditions.

INTRODUCTION

This report describes a supplemental traffic analysis for the proposed Forest Ranch project in Placer County, California. This study particularly relates to the four key intersections in the vicinity of the Interstate 80/Auburn Ravine Road/Foresthill Road interchange, as well as the freeway mainline and the freeway ramps at that interchange. The analysis specifically reflects input received from Caltrans, District 3 in a January 28, 2002 letter from Jeffrey Pulverman, Chief - Office of Regional Planning. Further, it supplements a previous study that addressed daily traffic operations in the vicinity of the proposed project (Reference: kdANDERSON Transportation Engineers, *Forest Ranch DEIR Transportation and Circulation Element*, September 30, 2003).

This supplemental traffic analysis focused on the AM and PM peak hours for existing conditions and the PM peak hour for cumulative conditions (representing the level of development anticipated in Placer County in the year 2020). For both time periods, analyses were performed both with and without buildout of the proposed Forest Ranch land uses.

This report presents the analysis procedures as well as the findings and recommendations resulting from the analysis.

Project Description

According to information presented in the kdANDERSON report mentioned above, the proposed Forest Ranch project would include the following land uses on a 2,615-acre site:

- Single-Family Detached Residential – 297 dwelling units (DU);
- Townhome Residential – 216 DU;
- Retirement Community – 1,700 DU (restricted to persons 55 years of age and older);
- Office/Professional – 5,000 square feet (SF);
- Medical/Dental Office – 14,000 SF;
- Recreational Vehicle (RV) Park – 100 units;
- Golf Course – 18 holes; and
- Equestrian Center – 50 horses.

Study Intersections

Based on input from Caltrans - District 3 staff, the following intersections were identified for inclusion in this analysis:

- Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp;
- Auburn Ravine Road/I-80 Westbound Off-ramp;
- Auburn Ravine Road/I-80 Eastbound Ramps; and
- Auburn Ravine Road/Foresthill Road/Lincoln Way.

In addition, as requested by Caltrans staff, the I-80 freeway mainline was analyzed, as were the various freeway ramp junctions at the I-80/Auburn Ravine Road/Foresthill Road interchange.

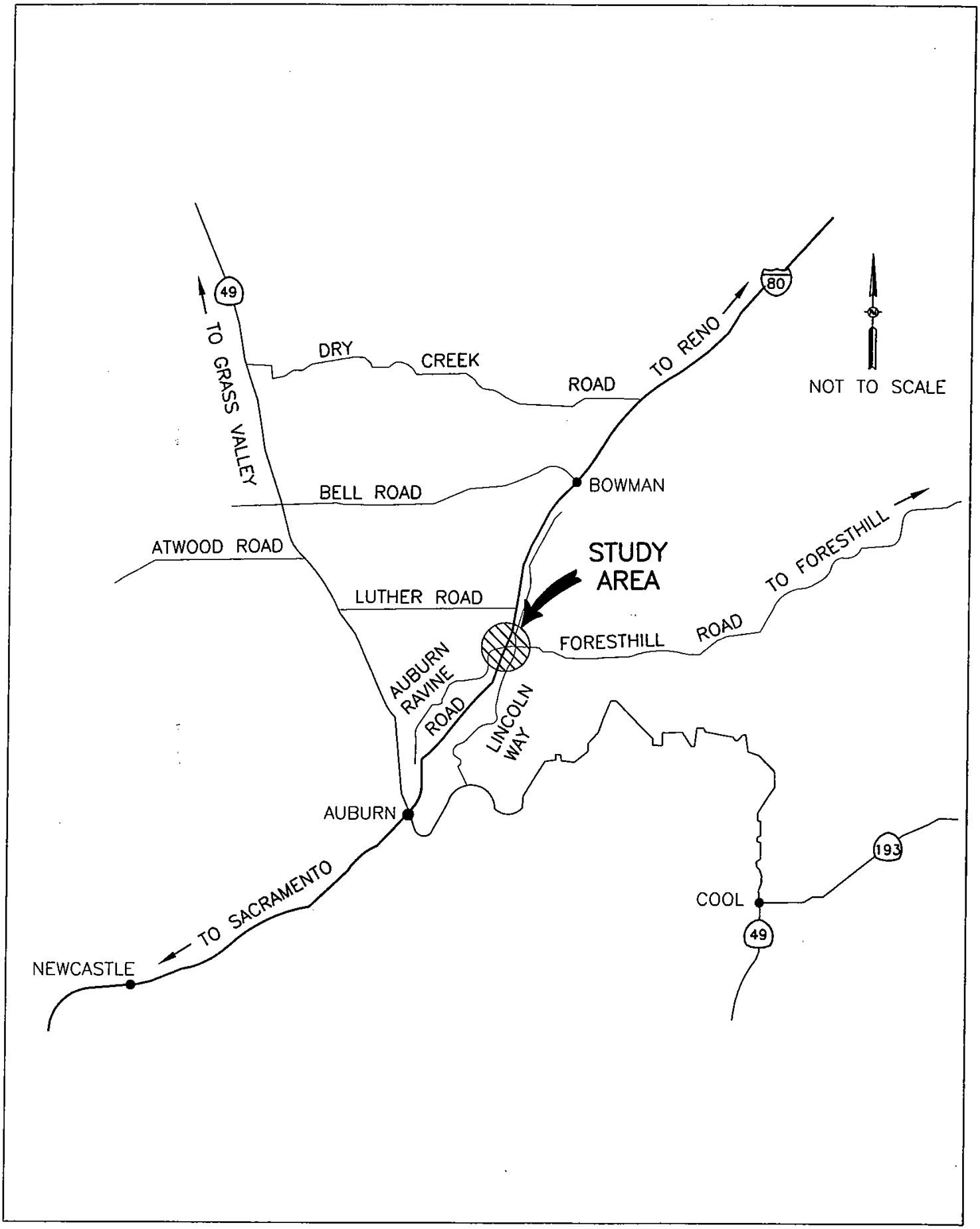
Figure 1 illustrates the location of this study area. Note that while the proposed Forest Ranch project is located within the Foresthill Divide Community Plan area, the intersections and freeway facilities addressed in this analysis are not; instead, they are in the adjacent Auburn/Bowman Community Plan area.

Intersection Analysis Methodology

Intersection operations are typically described in terms of level of service (LOS), which is reported on a scale from LOS A (representing free-flow conditions) to LOS F (which represents substantial congestion and delay). The level of service designations are based on a quantitative calculation of delay at the intersection. The specific approach to estimating delay is based on procedures documented in the *Highway Capacity Manual* (Transportation Research Board, 2000). Descriptions of operating conditions and delay values for signalized intersections are presented below. The technical calculations completed for this study are presented in the appendices.

The study intersections, all of which are signalized, were analyzed using the "operational analysis" methodology presented in the year 2000 edition of the *Highway Capacity Manual* (*HCM 2000*). This approach determines signalized intersection level of service by comparing the "average control delay per vehicle" to the thresholds shown in Table 1. Control delay represents the delay directly associated with the traffic signal. For this analysis, the level of service calculations were performed using the *Synchro 5* software package, which implements the intersection analysis procedures documented in the *HCM 2000.*

To ensure a conservative analysis of conditions at the two freeway off-ramp intersections, it was assumed that right-turns-on-red are impossible from those off-ramps onto Auburn Ravine Road. Field observations revealed that, because of the short intersection spacing along this section of Auburn Ravine Road, standing queues from the adjacent intersections often effectively block the ability of such right turns to be made. At the I-80 westbound off-ramp, the queues extend eastward from Bowman Road while at the I-80 eastbound ramp, queues generated at the Auburn Ravine Road/Foresthill Road/Lincoln Way intersection regularly extend back to, and even through, the off-ramp intersection.



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STUDY AREA

FIGURE 1

Table 1
Signalized Intersection
Level of Service Definitions[1]

Level of Service	Description	Average Control Delay (Seconds/Vehicle)
A	Very low delay. Most vehicles do not stop	≤ 10.0
B	Slight delay. Generally good signal progression.	10.1 – 20.0
C	Increased number of stopped vehicles. Fair signal progression.	20.1 – 35.0
D	Noticeable congestion. Large proportion of vehicles stopped.	35.1 – 55.0
E	Operating conditions at or near capacity. Frequent cycle failure.	55.1 – 80.0
F	Oversaturation. Forced or breakdown flow. Extensive queuing.	> 80.0

Note:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.

Freeway Analysis Methodology

The analysis of the impacts of the proposed Forest Ranch project on the Interstate 80 (I-80) freeway system had two primary components: a freeway mainline analysis and a freeway ramp junction analysis. The procedures employed for each of these analyses are summarized below.

Freeway Mainline Analysis

The freeway mainline analysis addressed the key segments of I-80 in the vicinity of the Auburn Ravine Road/Foresthill Road interchange. The analysis was conducted in accordance with procedures published in Chapters 13 and 23 of the *Highway Capacity Manual* (Transportation Research Board, 2000) and specifically utilized the *HCS* software package.

Level of service on freeways is defined in terms of density (in passenger cars per mile per lane), which is considered an accurate measure of the ability of vehicles to maneuver, given the proximity of other vehicles. Although drivers often consider speed to be a valid indicator of service quality, research has indicated that speed is nearly consistent over a wide range of traffic flow rates. For that reason, speed is not considered a meaningful indicator of freeway level of service. Table 2 summarizes the level of service criteria for basic freeway segments, as defined in the *Highway Capacity Manual.*

Table 2
Freeway Mainline
Level of Service Definitions[1]

Level of Service	Description	Maximum Density (Passenger Cars/Mile/Lane)
A	Free-flow operations, with individual users virtually unaffected by others in the traffic stream.	≤ 11.0
B	Stable flow, with speeds generally at the free-flow level. The presence of others in the traffic stream is only slightly noticeable.	11.1 – 18.0
C	Stable flow with speeds at or near the free-flow level. Individuals become noticeably affected by interactions with others.	18.1 – 26.0
D	High-density but stable flow, with speeds beginning to decline slightly and freedom to maneuver more noticeable limited.	26.1 – 35.0
E	Operating conditions at or near capacity. Virtually no usable gaps exist in the traffic stream, significantly restricting maneuverability.	35.1 – 45.0
F	Represents forced or breakdown flow.	> 45.0

Note:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.

Freeway Ramp Junction Analysis

The analysis of freeway ramps addressed the on- and off-ramps at the I-80/Auburn Ravine Road/Foresthill Road interchange, as those would be most affected by implementation of the proposed project. The freeway ramp analysis employed the year 2000 *Highway Capacity Manual* analysis techniques, as documented in Chapters 13 and 25 of that publication.

The ramp junction analysis consisted of an evaluation of the merge/diverge activity at the ramp-freeway junctions, based on existing and projected traffic volumes and a number of specific factors concerning the individual ramp facilities, again using the *HCS* software package. Level of service for ramp-freeway junction areas is generally defined in terms of the density of traffic in the "ramp influence area" (although LOS F is defined as occurring when demand exceeds the capacity of the upstream or downstream freeway section or the capacity of an off-ramp). For on-ramps, the influence area is defined as 1,500 feet downstream from the point where the ramp joins the freeway mainline. For off-ramps, that area is defined as the 1,500 feet in advance of the point at which the ramp diverges from the mainline. For both on-ramps and off-ramps, the influence area includes only the two right-most lanes on the freeway mainline, as those lanes are most affected by the maneuvers associated with vehicles entering or exiting the freeway. Table 3 summarizes the criteria used to define ramp-freeway junction levels of service.

Table 3 **Ramp Junction (Merge/Diverge)** **Level of Service Definitions**[1]	
Level of Service	Maximum Density (Passenger Cars/Mile/Lane)
A	≤ 10.0
B	10.1 – 20.0
C	20.1 – 28.0
D	28.1 – 35.0
E	> 35.0
F	Demand exceeds capacity.

Note:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.

Evaluation Criteria

Two sources of potential evaluation criteria are available for this study. Placer County's *Auburn/Bowman Community Plan* sets forth goals and policies to guide the development of the study area addressed in this analysis. Also included in that plan are policies regarding the operation of the road system within the plan area. Table 17 of the Community Plan document identifies Auburn Ravine Road at the I-80 overcrossing as having a minimum level of service standard of LOS E.

Caltrans has also established operational standards for the roadways under its jurisdiction, which were described in the agency's January 28, 2002 letter. In some cases, the Caltrans requirement represents a more conservative standard than has been set by Placer County. Based on a review of the two sets of evaluation criteria, for this analysis the proposed Forest Ranch project would be considered to have a significant impact on traffic operations if project-generated traffic would:

- Change the intersection level of service from acceptable levels (LOS A, B, C, or D) to unacceptable levels (LOS E or F).
- Change the I-80 freeway mainline level of service from acceptable levels (LOS A, B, C, D, or E) to an unacceptable level (LOS F).
- Cause any ramp junction (merge/diverge) level of service to be worse than the I-80 freeway mainline level of service.
- Exacerbate intersection operations through an increase in the delay value at an intersection that already operates at LOS E or F under "no project" conditions.

- Exacerbate freeway mainline conditions through an increase in the density value on a freeway section that already operates at LOS F under "no project" conditions.

As noted above, the evaluation criteria employed in this analysis reflect the Caltrans operational standards, which in some cases are more stringent than would be required by Placer County policy. Specifically, the Caltrans standard requires the study intersections to operate at LOS D or better, while Placer County would allow operation at LOS E.

EXISTING CONDITIONS

This section describes existing traffic operations in the study area.

Key Roadways

A brief description of the key roadways in the study area is provided below.

Interstate 80 (I-80) is a controlled-access freeway facility. Although I-80 is generally an east-west facility, it runs in a north-south direction through the study area. It is a major national highway facility, connecting the Atlantic and Pacific coasts and providing one of the key crossings of the Sierra Nevada Mountains. In the study area, I-80 provides three lanes in each direction.

Auburn Ravine Road is a two-lane roadway that provides access to I-80 and the commercial area surrounding the freeway interchange. Within the study area, Auburn Ravine Road is an east-west facility, but west of Bowman Road it curves to the south. East of Lincoln Way, Auburn Ravine Road becomes Foresthill Road.

Foresthill Road is a two-lane, east-west road east of Lincoln Way. This road provides the primary connection between Auburn and the Foresthill community. Just east of the Foresthill Bridge over the American River, Foresthill Road carries about 6,650 vehicles per day.

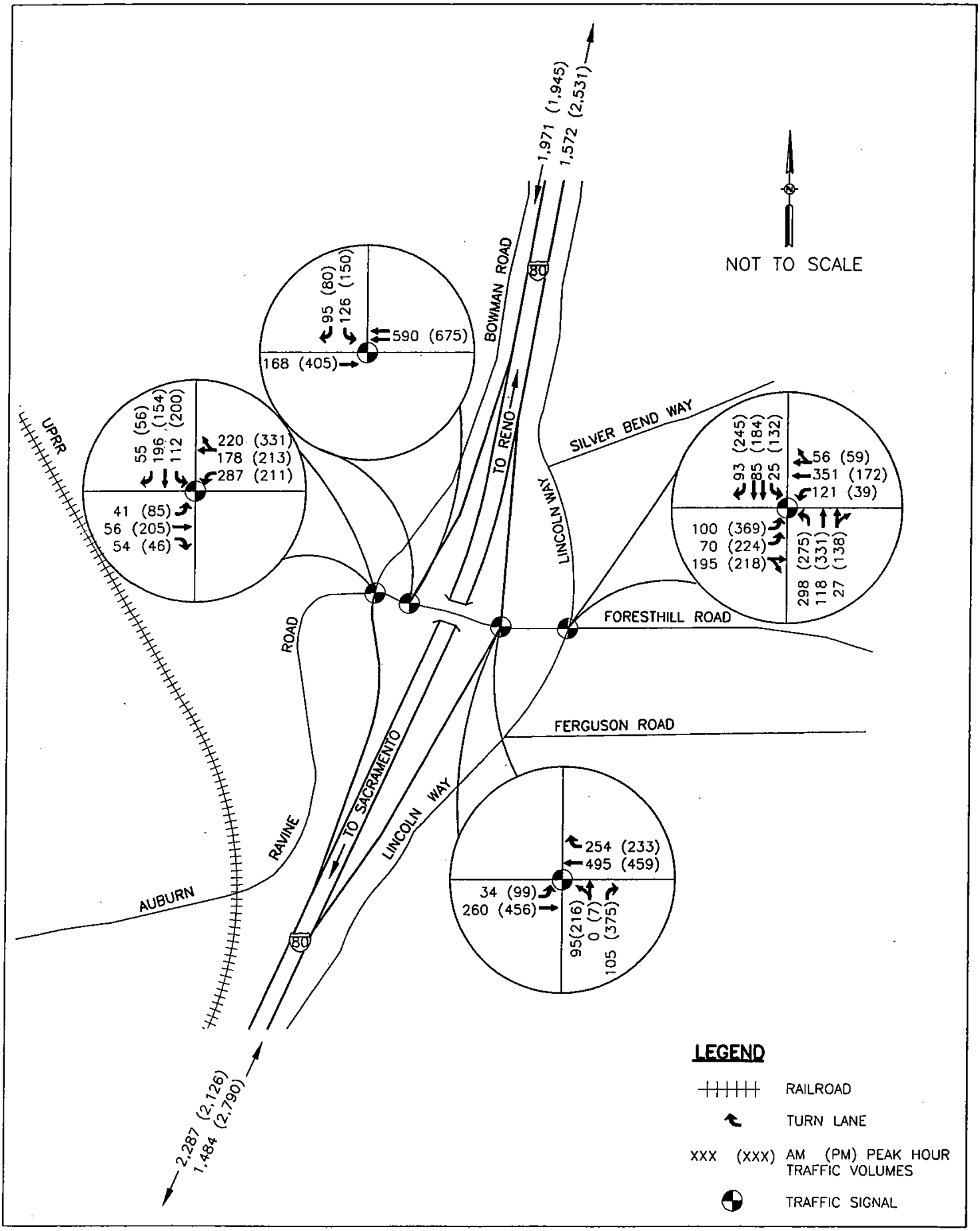
Bowman Road is a north-south frontage road along the west side of I-80. It provides access to a number of commercial uses between Auburn Ravine Road and Bell Road to the north.

Lincoln Way serves as a north-south frontage road in the study area, running along the east side of I-80. It also provides direct access to downtown Auburn, a short distance to the south.

Existing Traffic Volumes

PM peak-period turning movement counts were conducted at the four study intersections on July 12, 2002. Those traffic counts were performed in connection with a detailed analysis of traffic operations at the I-80/Auburn Ravine Road interchange by Fehr & Peers Associates, under contract to Placer County. Because the PM counts were conducted on a summer Friday, they include a substantial amount of weekend recreational traffic in the I-80 corridor. As such, the counts represent higher-than-typical traffic volumes, thereby providing a conservative indication of traffic operations at the study intersections. Those counts were supplemented with AM peak period turning movement counts, which were conducted on June 18, 2003 and again on November 4, 2003. The AM peak period counts performed in November revealed slightly higher overall traffic volumes, so those counts were used in this analysis. Freeway mainline volume counts and a freeway vehicle classification survey were also performed on June 18, 2003, during both peak periods. As appropriate, the AM peak hour freeway counts were adjusted to reflect the results of the November 2003 counts.

The peak-hour volumes and existing intersection lane configurations are shown on Figure 2.



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PEAK HOUR TRAFFIC VOLUMES
EXISTING CONDITIONS

FIGURE 2

Existing Intersection Level of Service

Table 4 summarizes the existing AM and PM peak-hour levels of service at each study intersection. Appendix A contains the technical calculation sheets.

The four study intersections all operate at LOS C or better in the AM peak hour. The intersections of Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp and Auburn Ravine Road/I-80 Westbound Off-ramp both operate at LOS B, while the intersection of Auburn Ravine Road/I-80 Eastbound Ramps operates at LOS A. Auburn Ravine Road/Foresthill Road/Lincoln Way operates at LOS C in this time period.

In the PM peak hour, all four study intersections are at LOS D or better. The intersections of Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp and Auburn Ravine Road/I-80 Westbound Off-ramp operate at LOS B. The intersection of Auburn Ravine Road/I-80 Eastbound Ramps operates at LOS D and Auburn Ravine Road/Foresthill Road/Lincoln Way operates at LOS C.

Thus, according to the level of service standard being employed in this analysis, the four existing study intersections operate at acceptable levels of service in the both the AM and the PM peak hour.

Table 4
Intersection Level of Service Summary[1]
Existing Conditions

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay[2]	LOS[3]	Delay	LOS
Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp	Signal	15.5	B	19.2	B
Auburn Ravine Road/I-80 Westbound Off-ramp	Signal	12.3	B	10.2	B
Auburn Ravine Road/I-80 Eastbound Ramps	Signal	7.1	A	36.6	D
Auburn Ravine Road/Foresthill Road/Lincoln Way	Signal	22.8	C	33.9	C

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
2 Average control delay (seconds per vehicle)
3 Level of service

Existing Freeway Mainline Level of Service

The results of the analysis of I-80 mainline operations in the AM and PM peak hours under existing conditions are summarized in Table 5. The level of service worksheets are presented in Appendix A.

The I-80 freeway mainline operates at LOS A or B in both directions in the AM peak hour, both north and south of Auburn Ravine Road. In the PM peak hour, the analysis reveals LOS B on both study

segments in both directions. Thus, the freeway mainline operates at acceptable levels of service under existing conditions.

Table 5
Freeway Mainline Level of Service Summary[1]
Existing Conditions

I-80 Segment	AM Peak Hour				PM Peak Hour			
	Eastbound		Westbound		Eastbound		Westbound	
	Density[2]	LOS[3]	Density	LOS	Density	LOS	Density	LOS
North of Auburn Ravine Road	9.6	A	11.2	B	14.6	B	11.2	B
South of Auburn Ravine Road	9.0	A	13.0	B	16.1	B	12.3	B

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
2 In passenger cars per mile per lane
3 Level of service

Existing Freeway Ramp Junction Level of Service

Table 6 presents the results of the analysis of the freeway ramp junctions for existing conditions in the AM and PM peak hours. The technical calculation worksheets are presented in Appendix A.

The four on-and off-ramps at the I-80/Auburn Ravine Road/Foresthill Road interchange all operate at LOS B in the AM peak hour. In the PM peak hour, the I-80 Eastbound Off-ramp is at LOS C, while the other three ramps are again at LOS B.

Table 6
Freeway Ramp Junction Level of Service Summary[1]
Existing Conditions

Freeway Ramp	AM Peak Hour		PM Peak Hour	
	Density[2]	LOS[3]	Density	LOS
I-80 Westbound On-ramp	16.6	B	15.5	B
I-80 Westbound Off-ramp	14.4	B	14.4	B
I-80 Eastbound On-ramp	12.4	B	17.5	B
I-80 Eastbound Off-ramp	11.8	B	20.6	C

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
2 In passenger cars per mile per lane
3 Level of service

EXISTING + PROJECT TRAFFIC IMPACT ANALYSIS

This section documents the effects of adding the traffic associated with full buildout of the proposed Forest Ranch project to existing traffic volumes at the study locations. It assumes that no improvements will have been made to any of the study intersections or to the freeway facilities. To evaluate these impacts, the volume of traffic generated by construction of the proposed project was estimated and that traffic was assigned to the adjacent street system. The levels of service at the study locations were then analyzed for the AM and PM peak hours.

Project Description

As described earlier, buildout of the proposed Forest Ranch project would result in the following levels of development on the 2,615-acre site:

- Single-Family Detached Residential – 297 dwelling units (DU);
- Townhome Residential – 216 DU;
- Retirement Community – 1,700 DU (restricted to persons 55 years of age and older);
- Office/Professional – 5,000 square feet (SF);
- Medical/Dental Office – 14,000 SF;
- Recreational Vehicle (RV) Park – 100 units;
- Golf Course – 18 holes; and
- Equestrian Center – 50 horses.

Trip Generation

The AM and PM peak-hour trip generation estimates associated with the proposed Forest Ranch land uses were based on daily traffic information presented in the *Forest Ranch DEIR Transportation and Circulation Element* (kdANDERSON Transportation Engineers, September 30, 2003). The daily traffic volumes were converted to AM and PM peak hour figures using information provided in that report, as well as information concerning the directional orientation of the project trips contained in documents published by the Institute of Transportation Engineers (ITE).

According to Table 5 in the *Forest Ranch DEIR Transportation and Circulation Element*, completion of the proposed Forest Ranch project will generate a net total of 8,359 "external" trips on a daily basis. In this context, external trips are those which have either an origin or a destination outside the project boundaries (i.e., only one end of the trip – either the origin or the destination – is within the project site).

Information presented in Table 6 and elsewhere in that report was then used to estimate how many of these external trips would use Foresthill Road to travel to and from I-80 and the Auburn area. Key assumptions derived from the report include the following:

- Proportion of project-generated external trips that will remain within the Foresthill community (i.e., one end of the trip is on the project site and the other end is somewhere within the local community; these trips will not use Foresthill Road to travel to and from the Auburn area or other destinations

outside Foresthill) versus trips that will have an origin or a destination outside the Foresthill community

Land Use	External Project Trips Remaining Within the Foresthill Community	External Project Trips Beginning or Ending Outside the Foresthill Community
Residential (all forms)	15 percent	85 percent
Golf Course	90 percent	10 percent
Office/Professional	100 percent	0 percent
Medical/Dental Office	100 percent	0 percent
Recreational Vehicle Park	0 percent	100 percent
Equestrian Center	100 percent	0 percent

- Proportion of external project trips beginning or ending outside the Foresthill community (as noted above) that will travel to and from the Auburn area

Land Use	External Project Trips That Travel To/From Auburn	External Project Trips That Do Not Travel To/From Auburn
Residential (all forms)	95 percent	5 percent
Golf Course	100 percent	0 percent
Office/Professional	N.A.[1]	N.A.
Medical/Dental Office	N.A.	N.A.
Recreational Vehicle Park	100 percent	0 percent
Equestrian Center	N.A.	N.A.

[1] Not applicable; No external trips

Table 7 summarizes the application of these parameters to the daily trip estimate for each proposed land use, and presents the net number of external daily trips expected to use Foresthill Road between the proposed project and the study area.

The proposed project will generate a total of 6,551 daily trips that will travel to and from the Auburn area and, therefore, pass through the study area for this supplemental traffic analysis. (Note that this estimate compares favorably with the estimate of 6,550 daily trips at the Foresthill Bridge presented in the kdANDERSON report.) Of those, the vast majority are associated with the residential uses at the proposed project. In total, 6,201 (about 95 percent) of the external daily trips will be generated by the residential uses. Excluding the residential uses, only the golf course (17 daily trips) and the RV park (333 daily trips) are expected to generate external trips that will affect the study locations.

Table 7
External Daily Trip Generation Estimate[1]

Land Use	Forest Ranch Daily Trips[2]	External Forest Ranch Trips That Are Also External to Foresthill		External Forest Ranch Trips That Travel To/From Auburn	
		Percent	Daily Trips	Percent	Net External Daily Trips
Single-Family Residential	1,552	85%	1,319	95%	1,253
Townhome Residential	1,129	85%	960	95%	912
Retirement Community	4,998	85%	4,248	95%	4,036
Golf Course	172	10%	17	100%	17
Office/Professional	44	0%	0	N.A.	0
Medical/Dental	119	0%	0	N.A.	0
RV Park	333	100%	333	100%	333
Equestrian Center	12	0%	0	N.A.	0
TOTAL	8,359		6,877		6,551

Notes:
1 Reference: kdANDERSON Transportation Engineers, *Forest Ranch DEIR Transportation and Circulation Element*, September 30, 2003.
2 Daily trips that are external to the project site; excludes those trips that remain entirely within the site, such as trips between the retirement community and the golf course.

Conversion of the daily trips to AM and PM peak hour trips is summarized in Table 8. That table utilizes information developed by the Institute of Transportation Engineers (ITE), as presented in the ITE *Trip Generation* manual (Sixth Edition, 1997). Specifically, the ITE document was used to establish the proportion of daily trips that occur in each of the two peak hour periods. Although the daily trip estimates have used reduced trip generation rates to reflect the rural location of the proposed project, this analysis assumes that the same proportion of those trips will occur in the AM and PM peak hours as would occur in other, less rural locations. The analysis has been conducted individually for each land use, however, so the peak hour trip generation patterns for the retirement community (which differ substantially from the other residential uses, especially in the AM peak hour) are accurately reflected. As shown, the analysis indicates that the proposed project will generate 428 external AM peak-hour trips and 627 external PM peak-hour trips.

Table 8
Peak-Hour Trip Generation Estimate[1]
(External to Foresthill Community)

Land Use	Net External Daily Trips[2]	AM Peak Hour		PM Peak Hour	
		Percent of Daily[3]	Peak-Hour Trips	Percent of Daily[3]	Peak-Hour Trips
Single-Family Residential	1,253	7.8%	98	10.6%	132
Townhome Residential	912	7.5%	68	9.2%	84
Retirement Community	4,036	5.8%	234	9.2%	371
Golf Course	17	4.9%	1	7.2%	1
Office/Professional	0	N.A.[4]	0	N.A.	0
Medical/Dental	0	N.A.	0	N.A.	0
RV Park	333	8.1%	27	11.7%	39
Equestrian Center	0	N.A.	0	N.A.	0
TOTAL	6,551		428		627

Notes:
1 Reference: kdANDERSON Transportation Engineers, *Forest Ranch DEIR Transportation and Circulation Element*, September 30, 2003.
2 See Table 7.
3 Reference: Institute of Transportation Engineers, *Trip Generation*, Sixth Edition, 1997.
4 Not applicable; No external trips

The peak-hour trips were then further defined as being inbound or outbound relative to the project site. Inbound trips will represent eastbound trips along Foresthill Road near the study locations, while outbound trips will be westbound in that area. Table 9 summarizes the derivation of the inbound and outbound traffic estimates for the AM and PM peak hours. This analysis again used information presented in the ITE *Trip Generation* manual, this time concerning the directional orientation of peak-hour trips for the various land uses.

The 428 AM peak-hour trips will consist of 147 inbound (eastbound) trips combined with 281 outbound (westbound) trips. Thus, approximately 35 percent of the AM peak-hour trips will travel eastbound along Foresthill Road, while the remaining 65 percent will be westbound.

In the PM peak hour, 380 inbound (eastbound) trips will combine with 247 outbound (westbound) trips to constitute the total of 627 trips. As such, about 60 percent of the project-generated trips will be eastbound, and 40 percent will be westbound.

Table 9
Peak-Hour Trip Directional Orientation

Land Use	AM Peak-Hour Trips[1]					PM Peak-Hour Trips[1]				
		Inbound		Outbound			Inbound		Outbound	
	Total	%[2]	Trips	%	Trips	Total	%	Trips	%	Trips
Single-Family Residential	98	25%	24	75%	74	132	64%	84	36%	48
Townhome Residential	68	17%	12	83%	56	84	67%	56	33%	28
Retirement Community	234	45%	105	55%	129	371	56%	208	44%	163
Golf Course	1	68%	1	32%	0	1	52%	1	48%	0
Office/Professional	0	N.A.[3]	0	N.A.	0	0	N.A.	0	N.A.	0
Medical/Dental	0	N.A.	0	N.A.	0	0	N.A.	0	N.A.	0
RV Park	27	20%	5	80%	22	39	80%	31	20%	8
Equestrian Center	0	N.A.	0	N.A.	0	0	N.A.	0	N.A.	0
TOTAL	428		147		281	627		380		247

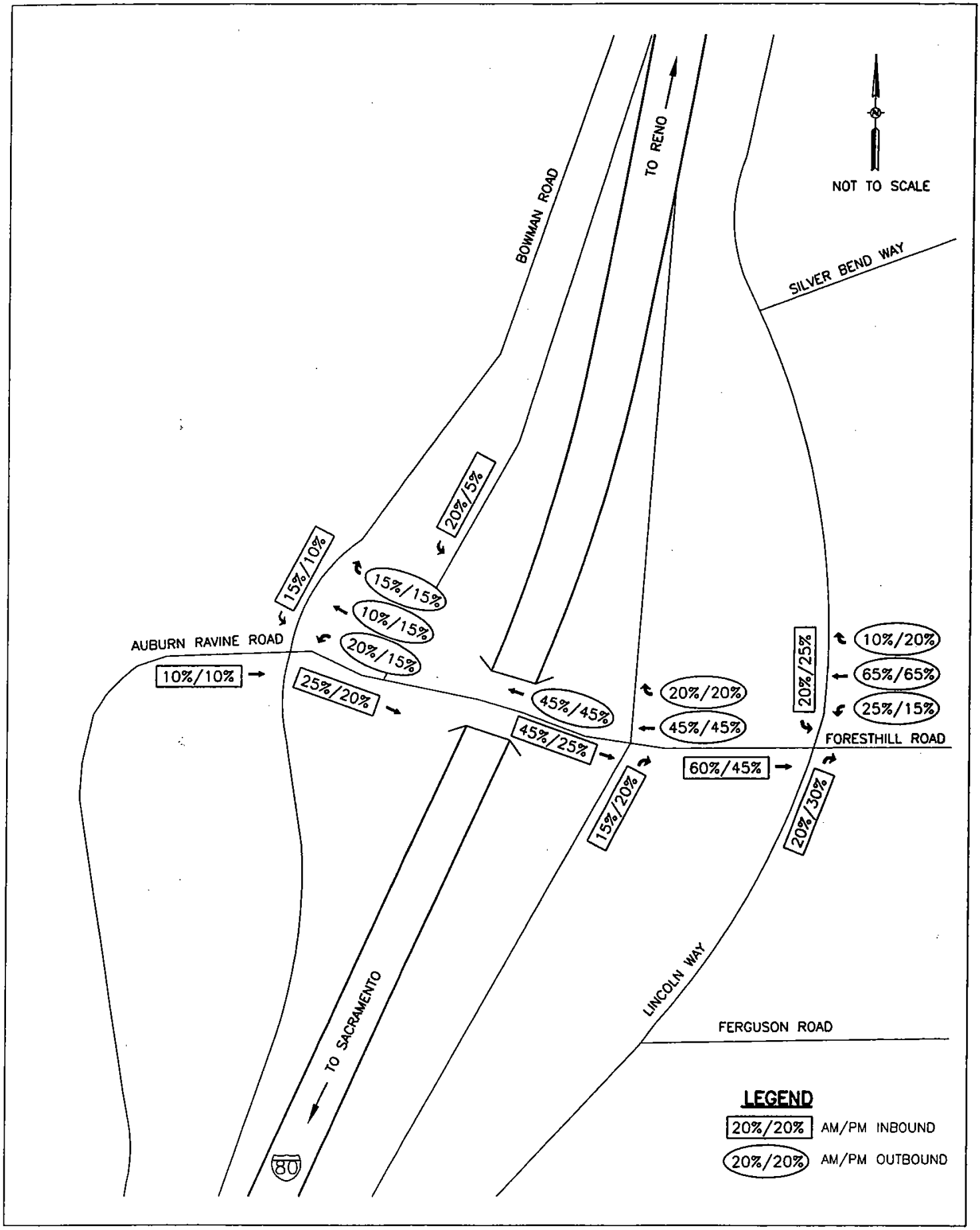
Notes:
[1] See Table 8.
[2] Reference: Institute of Transportation Engineers, *Trip Generation*, Sixth Edition, 1997.

Trip Distribution

The directional distribution of the project-generated traffic at the study locations was based primarily on existing traffic patterns at the intersections. Figure 3 illustrates the anticipated distribution of project-generated trips.

Project Traffic Assignment

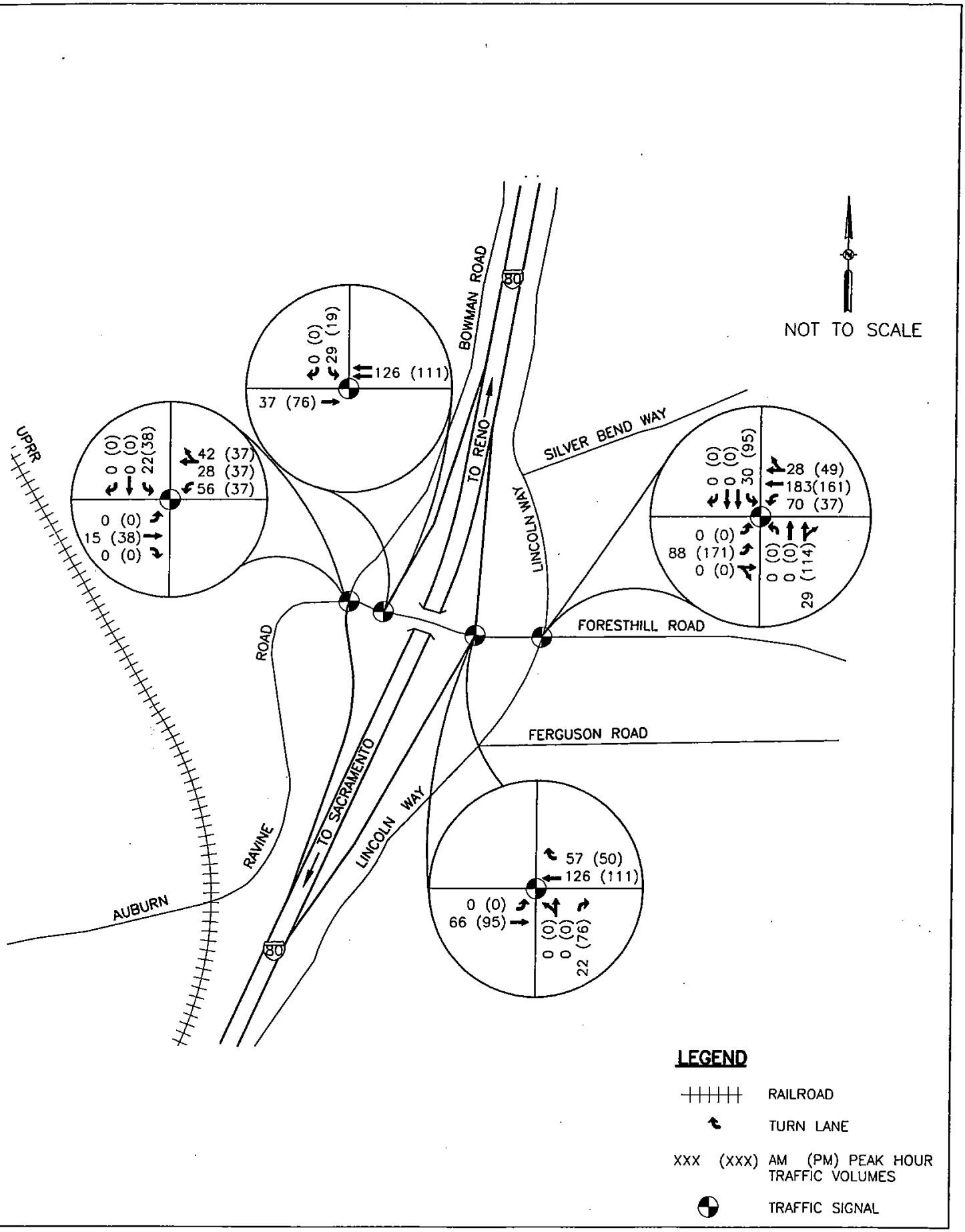
The AM and PM peak-hour traffic volumes generated by the proposed project are illustrated on Figure 4. Those trips were added to the existing traffic volumes, with the result being the "Existing + Project" scenario, as shown on Figure 5, which also illustrates the study intersection lane configurations.



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PROJECT TRIP DISTRIBUTION
EXISTING CONDITIONS

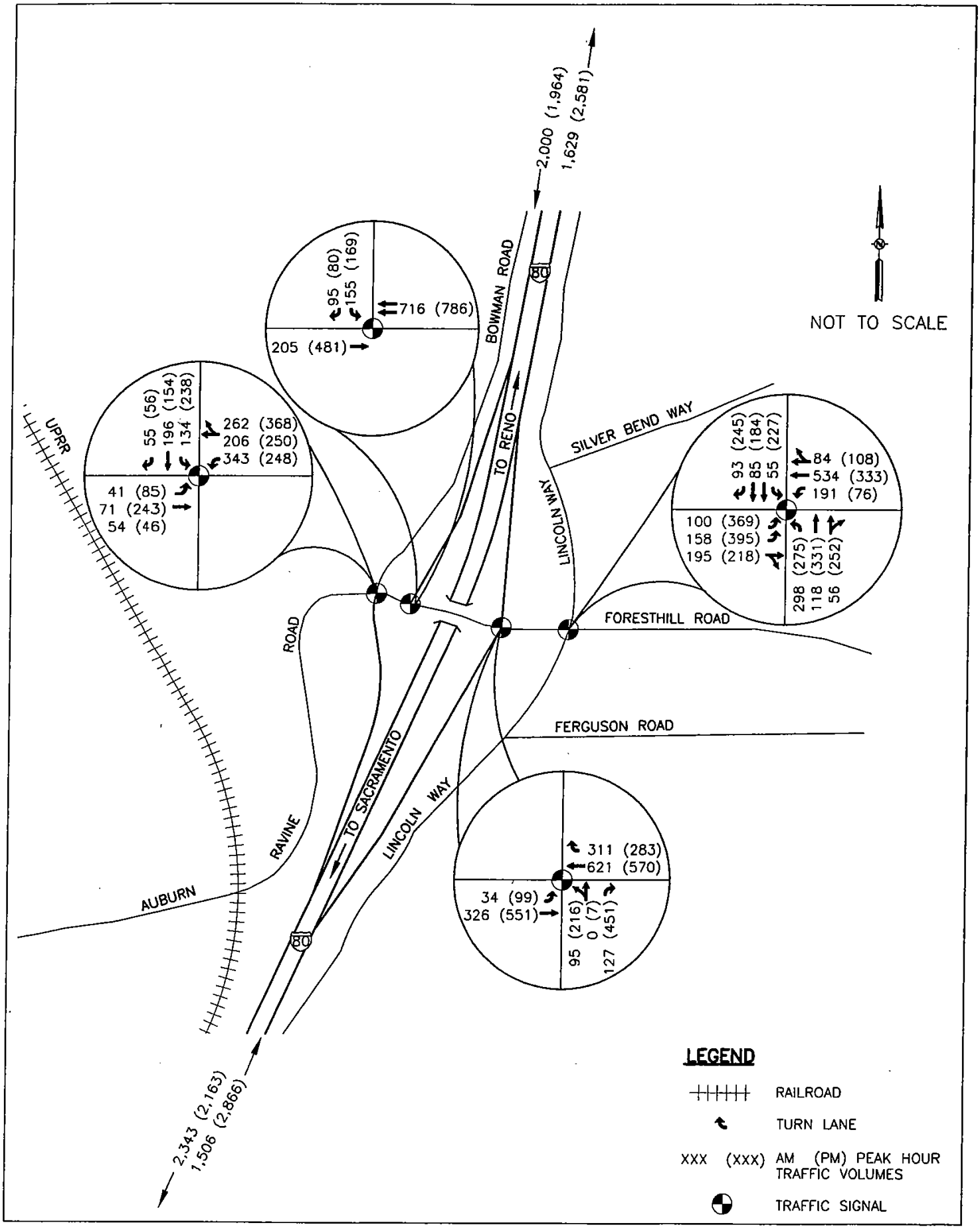
FIGURE 3



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PROJECT TRAFFIC ASSIGNMENT EXISTING CONDITIONS

FIGURE 4



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PEAK HOUR TRAFFIC VOLUMES
EXISTING + PROJECT CONDITIONS

FIGURE 5

Intersection Level of Service

Table 10 presents the AM and PM peak hour levels of service at each study intersection under Existing + Project conditions. Appendix B contains the technical calculation worksheets.

In the AM peak hour, addition of the project-generated traffic results in no change in level of service at three of the study intersections: Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp, Auburn Ravine Road/I-80 Westbound Off-ramp, and Auburn Ravine Road/I-80 Eastbound Ramps. Those three study locations will continue to operate at LOS A or B. The intersection of Auburn Ravine Road/Foresthill Road/Lincoln Way will decline from LOS C to LOS D in this time period.

In the PM peak hour, the intersection of Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp will decline from LOS B to LOS C and the intersection of Auburn Ravine Road/Foresthill Road/Lincoln Way will decline from LOS C to LOS D. The intersection of Auburn Ravine Road/I-80 Eastbound Ramps will continue to operate at LOS D, while Auburn Ravine Road/I-80 Westbound Off-ramp is projected to have a slightly lower average delay value and, therefore, to improve from LOS B to LOS A. While it may seem unlikely that adding traffic to an intersection would result in a lower delay value, in this case the project-generated traffic will be added to individual traffic movements having low delay values. Because the overall intersection delay value is based on a volume-weighted average of all movements, adding traffic to low-delay movements can sometimes result in a slight decrease in the intersection's overall weighted average delay value. In a practical sense, drivers at this location will perceive little or no change in the intersection's operation.

Thus, with the addition of the project-generated traffic, all of the study intersections will operate within the LOS D standard used in this analysis.

Freeway Mainline Level of Service

The results of the analysis of I-80 mainline operations in the AM and PM peak hours under Existing + Project conditions are summarized in Table 11. Appendix B contains the level of service worksheets.

All of the tested freeway segments will continue to operate at LOS A or B in both peak-hour periods. Addition of the project-generated traffic will result in only slight increases in the freeway segment density values, ranging from 0.1 to 0.4 passenger cars per mile per lane. Therefore, all of the tested freeway segments will continue to operate at acceptable levels of service under this analysis scenario.

Table 10
Intersection Level of Service Summary
Existing + Project Conditions

Intersection	Traffic Control	AM Peak Hour				PM Peak Hour			
		Existing Conditions		Existing Plus Project		Existing Conditions		Existing Plus Project	
		Delay[1]	LOS[2]	Delay	LOS	Delay	LOS	Delay	LOS
Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp	Signal	15.5	B	16.0	B	19.2	B	20.3	C
Auburn Ravine Road/I-80 Westbound Off-ramp	Signal	12.3	B	13.1	B	10.2	B	10.0	A
Auburn Ravine Road/I-80 Eastbound Ramps	Signal	7.1	A	7.5	A	36.6	D	49.7	D
Auburn Ravine Road/Foresthill Road/Lincoln Way	Signal	22.8	C	36.4	D	33.9	C	43.7	D

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] Average control delay (seconds per vehicle)
[3] Level of service

Table 11
Freeway Mainline Level of Service Summary
Existing + Project Conditions

	Eastbound				Westbound			
	Existing Conditions		Existing Plus Project		Existing Conditions		Existing Plus Project	
	Density[1]	LOS[2]	Density	LOS	Density	LOS	Density	LOS
AM Peak Hour								
North of Auburn Ravine Rd.	9.6	A	9.9	A	11.2	B	11.4	B
South of Auburn Ravine Rd.	9.0	A	9.2	A	13.0	B	13.3	B
PM Peak Hour								
North of Auburn Ravine Rd.	14.6	B	14.9	B	11.2	B	11.3	B
South of Auburn Ravine Rd.	16.1	B	16.5	B	12.3	B	12.5	B

Notes:
[1] Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
[2] In passenger cars per mile per lane
[3] Level of service

Freeway Ramp Junction Level of Service

The results of the analysis of the freeway ramp junctions for Existing + Project conditions in the AM and PM peak hours are summarized in Table 12. The level of service worksheets are presented in Appendix B.

All of the freeway ramp junctions will operate at LOS B in the AM peak hour, which is unchanged from existing conditions. Addition of the project-generated traffic will result in maximum density increases of 0.5 passenger cars per mile per lane.

In the PM peak hour, the levels of service will be similarly unchanged. Three of the ramps will be at LOS B and one at LOS C. The project-related increase in density in the vicinity of the ramps will range from 0.2 to 0.7 passenger cars per mile per lane.

Table 12
Freeway Ramp Junction Level of Service Summary[1]
Existing + Project Conditions

	AM Peak Hour				PM Peak Hour			
	Existing Conditions		Existing + Project		Existing Conditions		Existing + Project	
Freeway Ramp	Density[2]	LOS[3]	Density	LOS	Density	LOS	Density	LOS
I-80 Westbound On-ramp	16.6	B	17.1	B	15.5	B	15.8	B
I-80 Westbound Off-ramp	14.4	B	14.7	B	14.4	B	14.6	B
I-80 Eastbound On-ramp	12.4	B	12.9	B	17.5	B	18.0	B
I-80 Eastbound Off-ramp	11.8	B	12.0	B	20.6	C	21.3	C

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
2 In passenger cars per mile per lane
3 Level of service

Mitigation Measures

As noted above, the study intersections are all expected to operate at LOS D or better under Existing + Project conditions. In addition, the I-80 mainline freeway segments will be at LOS A or B, and the freeway ramp junctions will be at LOS C or better. Although, in some cases, the freeway ramp junctions operate at lower levels of service than the adjoining freeway mainline segment, this condition was not caused by the project-generated traffic; it already occurred under existing conditions. Therefore, no mitigation measures are recommended in connection with the proposed Forest Ranch project under Existing + Project conditions.

CUMULATIVE CONDITIONS ANALYSIS

This section describes the results of the analysis of study area traffic operations under cumulative conditions in the PM peak hour. No AM peak hour analysis has been conducted, as AM peak hour traffic projections are not provided by Placer County's General Plan travel demand forecasting model. This analysis reflects the level of development anticipated in Placer County through the year 2020. Analyses are presented for two scenarios: (1) Cumulative No Project conditions, which reflects the level of development and related traffic volumes associated with the revised version of the Foresthill Divide Community Plan (which is currently being updated), and (2) Cumulative + Project conditions, reflecting the addition of the traffic generated by the proposed Forest Ranch land uses to those "no project" volumes.

Planned Roadway Improvements

Consultation with Placer County staff identified the following roadway improvements that will be constructed at the study intersections prior to the year 2020:

- Widening of the I-80/Auburn Ravine Road overcrossing to four lanes – This $2,243,000 improvement is listed in the *Placer County Regional Transportation Plan – 2022* (Placer County Transportation Planning Agency, December 2001), and is planned to occur by 2010;
- A new eastbound right-turn lane at Auburn Ravine Road/Lincoln Way (i.e., conversion of a combined through/right-turn lane to separate through and right-turn lanes); and
- Dual northbound left-turn lanes on Lincoln Way at Auburn Ravine Road.

Figure 6 shows the modified lane configurations at the study intersections resulting from implementation of these planned improvements, which are assumed to be in place for both cumulative analysis scenarios.

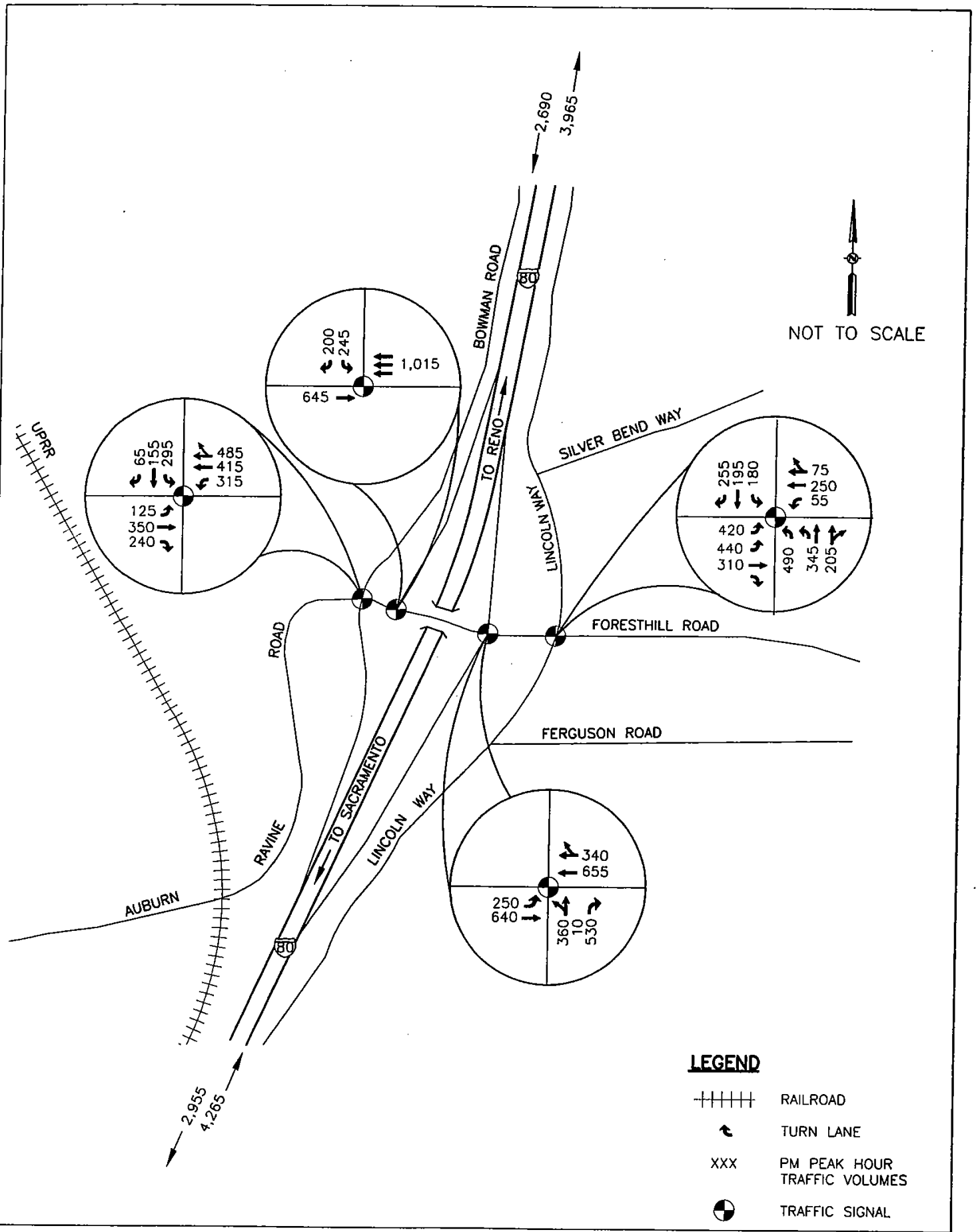
Cumulative No Project Conditions

Traffic volumes for Cumulative No Project conditions were taken from the traffic analyses conducted with regard to the updated Foresthill Divide Community Plan. (Reference: Martin, Rivett & Olson, Inc., *Supplemental Traffic Analysis – Foresthill Divide Community Plan*, July 3, 2003 and kdANDERSON Transportation Engineers, *Foresthill Community Plan DEIR Transportation and Circulation Element*, Updated April 8, 2003.) The estimates in those documents were based in part on future traffic volume estimates provided by Placer County Department of Public Works staff using the General Plan travel demand forecasting model.

Figure 6 illustrates the Cumulative No Project PM peak hour traffic volumes.

Intersection Level of Service

In the PM peak hour, LOS B is projected at the intersections of Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp and Auburn Ravine Road/I-80 Westbound Off-ramp. The intersection of Auburn Ravine Road/I-80 Eastbound Ramps is expected to be at LOS C and Auburn Ravine Road/Foresthill Road/Lincoln Way is expected to operate at LOS D. Thus, implementation of the updated Foresthill Divide Community Plan, combined with the roadway improvements described above, will result in acceptable operations at all four study intersections under Cumulative No Project conditions.



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PM PEAK HOUR TRAFFIC VOLUMES
CUMULATIVE NO PROJECT CONDITIONS

FIGURE 6

Table 13 summarizes the intersection level of service results for Cumulative No Project conditions. The calculation worksheets are presented in Appendix C.

Table 13
Intersection Level of Service Summary[1]
Cumulative No Project Conditions

Intersection	Traffic Control	PM Peak Hour	
		Delay[2]	LOS[3]
Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp	Signal	18.0	B
Auburn Ravine Road/I-80 Westbound Off-ramp	Signal	12.2	B
Auburn Ravine Road/I-80 Eastbound Ramps	Signal	31.2	C
Auburn Ravine Road/Foresthill Road/Lincoln Way	Signal	49.8	D

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
2 Average control delay (seconds per vehicle)
3 Level of service

Freeway Mainline Level of Service

The results of the analysis of I-80 mainline operations in the PM peak hour under cumulative no project conditions are summarized in Table 14. Appendix C contains the level of service worksheets.

The eastbound segments are both projected to be at LOS C under Cumulative No Project conditions, while the westbound direction will be at LOS B. These results indicate acceptable operation under this scenario.

Table 14
Freeway Mainline Level of Service Summary[1]
Cumulative No Project Conditions

I-80 Segment	PM Peak Hour			
	Eastbound		Westbound	
	Density[2]	LOS[3]	Density	LOS
North of Auburn Ravine Road	23.1	C	15.5	B
South of Auburn Ravine Road/Foresthill Road	25.1	C	17.1	B

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
2 In passenger cars per mile per lane
3 Level of service

Freeway Ramp Junction Level of Service

The results of the PM peak hour analysis of the freeway ramp junctions are summarized in Table 15. The level of service worksheets are presented in Appendix C.

All of the ramps will be at LOS D or better. Both on-ramps will operate at LOS C, while the westbound off-ramp is projected to be at LOS B and the eastbound off-ramp is expected to operate at LOS D.

Table 15
Freeway Ramp Junction Level of Service Summary[1]
Cumulative No Project Conditions

Freeway Ramp	PM Peak Hour	
	Density[2]	LOS[3]
I-80 Westbound On-ramp	21.0	C
I-80 Westbound Off-ramp	19.7	B
I-80 Eastbound On-ramp	26.4	C
I-80 Eastbound Off-ramp	29.4	D

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
2 In passenger cars per mile per lane
3 Level of service

Cumulative + Project Conditions

The following sections address the effects of adding the project-generated traffic to the Cumulative No Project volumes derived above.

Project Trip Generation

The project-generated PM peak hour traffic volumes for cumulative conditions were developed based on daily traffic information presented in the *Forest Ranch DEIR Transportation and Circulation Element.* The daily traffic volumes were converted to PM peak hour figures using a process similar to that described above for Existing + Project conditions.

According to Table 9 in the *Forest Ranch DEIR Transportation and Circulation Element*, Foresthill Road (east of the Foresthill Bridge) is projected to carry approximately 11,400 vehicles per day (VPD) under Cumulative No Project conditions. With full implementation of the proposed Forest Ranch project, the daily traffic volume at that location is estimated to be 12,200 VPD, indicating a net increase of 800 VPD. As described in detail in the *Forest Ranch DEIR Transportation and Circulation Element* report, this relatively low estimate for project-generated traffic is associated with the expected growth of

non-residential land uses within the Foresthill community. Consequently, a greater proportion of the residents' needs (with respect to jobs, shopping opportunities, and medical and dental care, for example) will be satisfied within the local community. As a result, fewer trips will be generated between the Foresthill residential areas and the commercial areas in and around Auburn.

Assuming, as derived earlier, that slightly over 9.5 percent of the net daily project-generated traffic will occur in the PM peak hour, this daily traffic volume increase translates to 76 PM peak hour trips. Using the directional orientation parameters developed earlier, about 60 percent of the project-generated PM peak hour traffic will be eastbound and 40 percent will be westbound. Thus, approximately 46 additional eastbound trips and 30 additional westbound trips will be generated in the PM peak hour as a result of full implementation of the proposed Forest Ranch project under cumulative conditions.

The project-generated traffic volumes were assigned to the study intersections using a trip distribution derived from the Cumulative No Project conditions traffic patterns. Because traffic patterns in the vicinity of the I-80/Auburn Ravine Road/Foresthill Road interchange are expected to change somewhat between now and the year 2020, the distribution of project-generated trips is expected to be slightly different than was used in the Existing + Project analysis. The cumulative conditions trip distribution is shown on Figure 7. Figure 8 illustrates the Cumulative + Project traffic volume estimates resulting from assignment of the proposed project-generated traffic using this distribution.

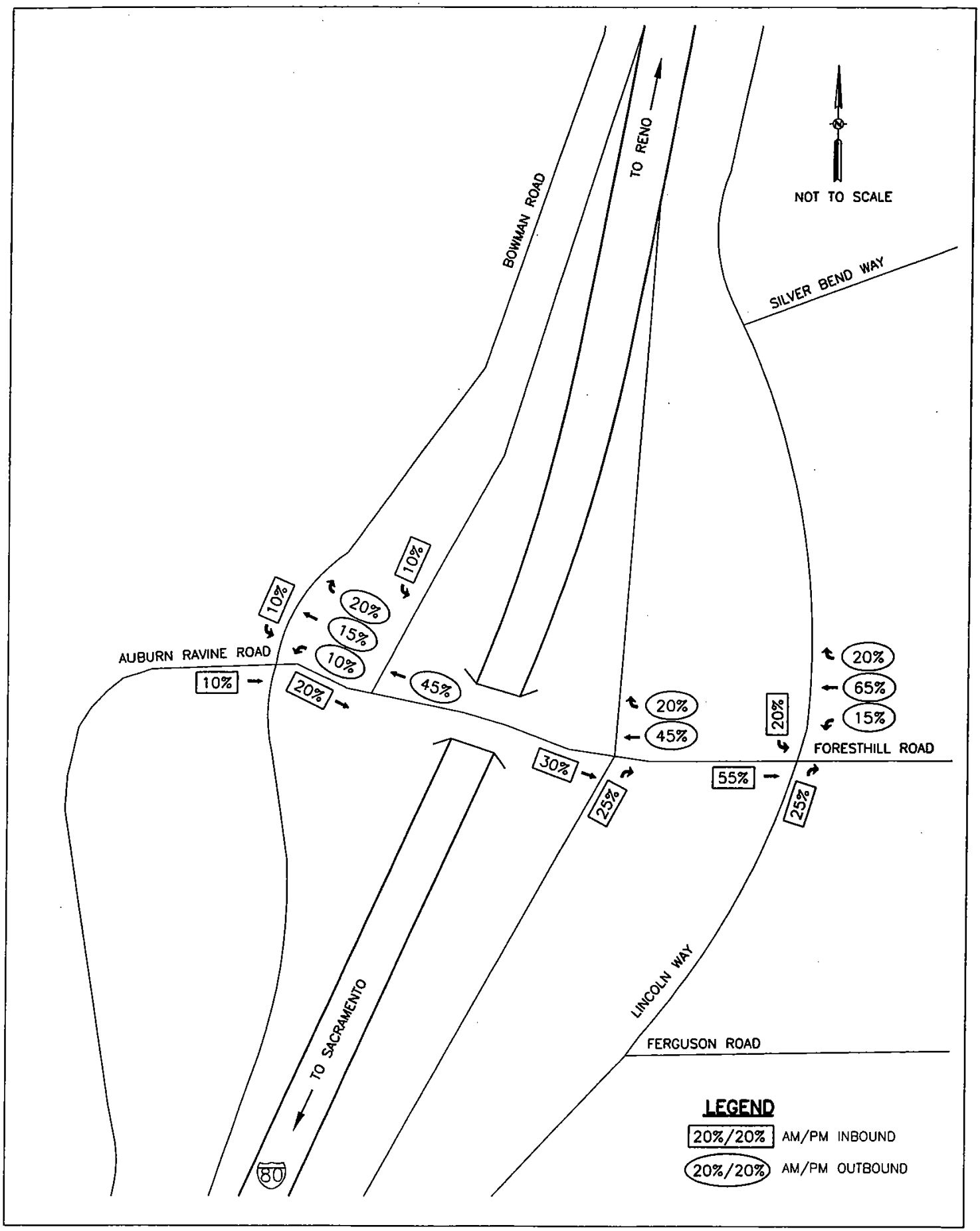
Intersection Level of Service

Table 16 presents the results of the intersection level of service analysis for the Cumulative + Project scenario. Appendix D contains the calculation worksheets.

Table 16
Intersection Level of Service Summary[1]
Cumulative + Project Conditions

Intersection	Traffic Control	Cumulative No Project		Cumulative + Project	
		Delay[2]	LOS[3]	Delay	LOS
Auburn Ravine Road/Bowman Road/I-80 Westbound On-ramp	Signal	18.0	B	18.4	B
Auburn Ravine Road/I-80 Westbound Off-ramp	Signal	12.2	B	12.2	B
Auburn Ravine Road/I-80 Eastbound Ramps	Signal	31.2	C	32.9	C
Auburn Ravine Road/Foresthill Road/Lincoln Way	Signal	49.8	D	53.0	D

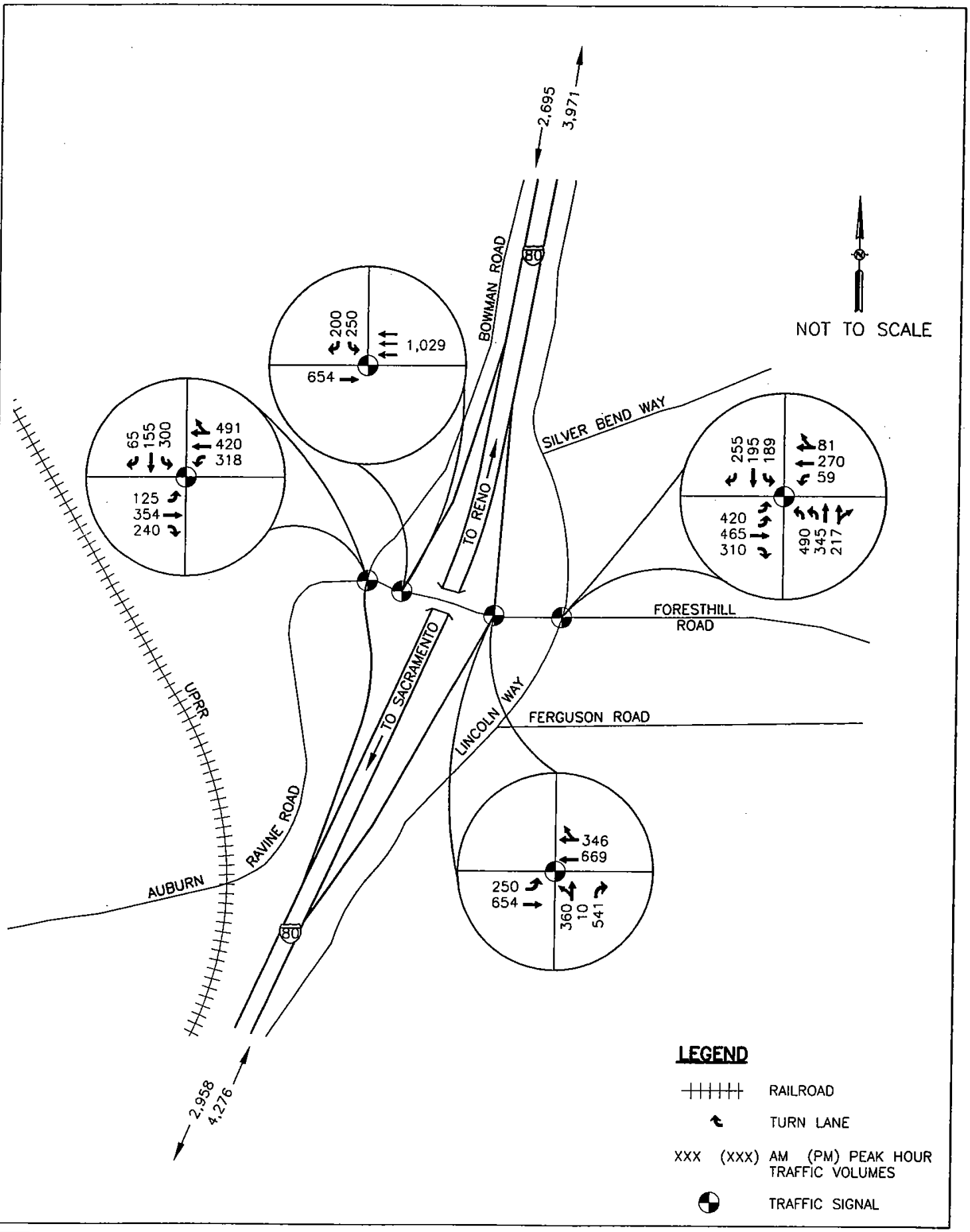
Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
2 Average control delay (seconds per vehicle)
3 Level of service



MARTIN RIVETT & OLSON
CONSULTING ENGINEERS

PROJECT TRIP DISTRIBUTION
CUMULATIVE CONDITIONS

FIGURE 7



MARTIN RIVETT & OLSON
CONSULTING ENGINEERS

PM PEAK HOUR TRAFFIC VOLUMES
CUMULATIVE + PROJECT CONDITIONS

FIGURE 8

No change in intersection level of service is anticipated with the addition of the project-generated traffic. The two westernmost study intersections are expected to remain at LOS B under Cumulative + Project conditions. The intersection of Auburn Ravine Road/I-80 Eastbound Ramps is projected to operate at LOS C, as under Cumulative No Project conditions. At the intersection of Auburn Ravine Road/Foresthill Road/Lincoln Way, the plan-generated traffic results in no change in LOS compared to Cumulative No Project conditions; it is projected to operate at LOS D under both scenarios.

Thus, the four study locations will meet the LOS D standard established for this study, and no significant traffic impacts will result from implementation of the proposed Forest Ranch project. As noted earlier, the LOS D standard used in this analysis is more stringent than has been defined by Placer County.

Freeway Mainline Level of Service

The results of the analysis of I-80 mainline operations in the PM peak hour under Cumulative + Project conditions are summarized in Table 17. Appendix D contains the level of service worksheets.

Addition of the project-generated traffic to the I-80 freeway mainline will result in no perceptible degradation in operations. In the eastbound direction, neither study segment will have a change in level of service, and little or no change in traffic density is projected. In the westbound direction, only a minor increase in density (0.1 passenger car per mile per lane) is projected north of Auburn Ravine Road, and no change is expected south of that location. All of the freeway mainline segments evaluated will operate at LOS B or C with addition of the project-generated traffic.

Table 17
Freeway Mainline Level of Service Summary[1]
Cumulative + Project Conditions

I-80 Segment	PM Peak Hour							
	Eastbound				Westbound			
	Cumulative No Project		Cumulative + Project		Cumulative No Project		Cumulative + Project	
	Density[2]	LOS[3]	Density	LOS	Density	LOS	Density	LOS
North of Auburn Ravine Road	23.1	C	23.1	C	15.5	B	15.6	B
South of Auburn Ravine Road	25.1	C	25.2	C	17.1	B	17.1	B

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
2 In passenger cars per mile per lane
3 Level of service

Freeway Ramp Junction Level of Service

Table 18 presents the results of the analysis of the freeway ramp junctions for Cumulative + Project conditions in the PM peak hour. The level of service worksheets are presented in Appendix D.

As with the freeway mainline, only minor changes in traffic density are foreseen. All of the freeway ramps will continue to operate at the same level of service found under Cumulative No Project conditions. Although certain of the ramp junctions will operate at lower levels of service than the corresponding mainline freeway segment, this condition is not associated with addition of the project-generated traffic, as similar conditions were found for the Cumulative No Project scenario.

Table 18
Freeway Ramp Junction Level of Service Summary[1]
Cumulative + Project Conditions

Freeway Ramp	PM Peak Hour			
	Cumulative No Project		Cumulative + Project	
	Density[2]	LOS[3]	Density	LOS
I-80 Westbound On-ramp	21.0	C	21.1	C
I-80 Westbound Off-ramp	19.7	B	19.7	B
I-80 Eastbound On-ramp	26.4	C	26.4	C
I-80 Eastbound Off-ramp	29.4	D	29.5	D

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual*, 2000.
2 In passenger cars per mile per lane
3 Level of service

Mitigation Measures

The Cumulative Conditions analysis revealed that all four study intersections are expected to operate at LOS D or better under Cumulative + Project conditions. Similarly, the I-80 freeway mainline and the on- and off-ramps at the I-80/Auburn Ravine Road/Foresthill interchange will continue to operate at acceptable levels of service. Therefore, no significant traffic impacts were identified and no mitigation measures are recommended in connection with the proposed Forest Ranch project under cumulative conditions.

Project Share of Programmed Roadway Improvements

Although the analysis documented here found that no project-related mitigation measures are needed under cumulative conditions, the proposed project could be required to contribute toward the completion of the programmed roadway improvements described earlier. Those improvements include widening the I-80 overcrossing at Auburn Ravine Road as well as modifications to the intersection of Auburn Ravine Road/Foresthill Road/Lincoln Way.

At the request of Placer County staff, an analysis was conducted to determine the proposed project's share of the anticipated growth in traffic at those locations. At each location, the volume of project-

related traffic under cumulative conditions was divided by the total growth in traffic (as represented by the difference between the Cumulative + Project traffic volume and the Existing Conditions volume). For example, based on information presented in the *Forest Ranch DEIR Transportation and Circulation Element* and the PM peak-hour traffic assignments presented earlier in this report, 28 project-generated trips will traverse the I-80/Auburn Ravine Road overcrossing in the PM peak hour under cumulative conditions (14 in each direction). The total traffic growth on the overpass structure will be 703 vehicle-trips (i.e., 1,933 trips under Cumulative + Project conditions minus 1,230 existing trips). Thus, the project-generated traffic constitutes 4.0 percent of the anticipated growth in traffic and, as such, should be responsible for 4.0 percent of the cost of widening the overcrossing.

Employing a similar process for the intersection of Auburn Ravine Road/Foresthill Road/Lincoln Way indicates that the proposed project will represent 8.4 percent of the expected growth in traffic at that location and could, therefore, be responsible for that portion of the cost of the programmed intersection improvements.

APPENDIX A

EXISTING CONDITIONS
LEVEL OF SERVICE CALCULATION WORKSHEETS

STUDY INTERSECTIONS

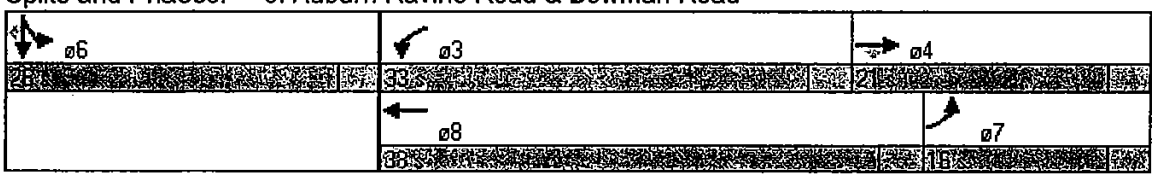


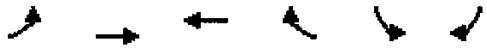
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		300	50		75	0		0	200		200
Storage Lanes	1		1	1		0	0		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50					50	50	50
Trailing Detector (ft)	0	0	0	0	0					0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.97	0.99	0.98					0.99		0.97
Frt			0.850		0.917							0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1678	0	0	0	0	1770	1863	1583
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1757	1863	1532	1749	1678	0	0	0	0	1747	1863	1532
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			59		97							60
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		500			130			500			500	
Travel Time (s)		13.6			3.5			13.6			13.6	
Volume (vph)	41	56	54	287	178	220	0	0	0	112	196	55
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	61	59	312	193	239	0	0	0	122	213	60
Lane Group Flow (vph)	45	61	59	312	432	0	0	0	0	122	213	60
Turn Type	Prot		Perm	Prot						Split		Perm
Protected Phases	7	4		3	8					6	6	
Permitted Phases			4									6
Total Split (s)	16.0	21.0	21.0	33.0	38.0	0.0	0.0	0.0	0.0	26.0	26.0	26.0
Act Effct Green (s)	12.0	33.0	33.0	22.1	49.4					13.0	13.0	13.0
Actuated g/C Ratio	0.15	0.41	0.41	0.28	0.62					0.16	0.16	0.16
v/c Ratio	0.17	0.08	0.09	0.64	0.40					0.43	0.71	0.20
Uniform Delay, d1	34.4	14.3	0.0	25.4	6.2					30.1	31.7	0.0
Delay	30.2	20.1	6.9	15.9	3.9					29.0	30.9	7.7
LOS	C	C	A	B	A					C	C	A
Approach Delay		18.1			8.9						26.8	
Approach LOS		B			A						C	
Queue Length 50th (ft)	20	20	0	50	8					56	102	0
Queue Length 95th (ft)	49	53	28	71	38					97	158	29
Internal Link Dist (ft)		420			50			420			420	
50th Up Block Time (%)				12%	5%							
95th Up Block Time (%)				13%	6%							
Turn Bay Length (ft)	200		300	50						200		200
50th Bay Block Time %				12%	5%							
95th Bay Block Time %				13%	6%							
Queuing Penalty (veh)				90	39							

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 75 (94%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 15.5 Intersection LOS: B
Intersection Capacity Utilization 52.2% ICU Level of Service A

Splits and Phases: 3: Auburn Ravine Road & Bowman Road



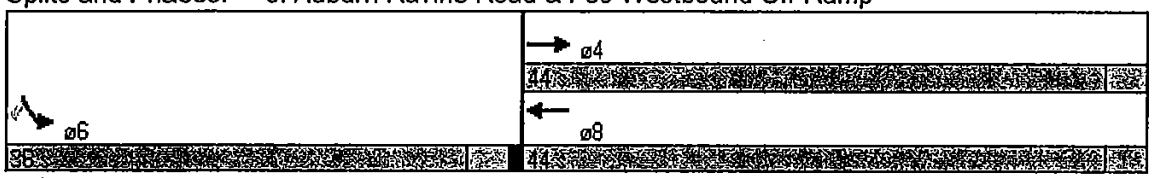


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	200	200
Storage Lanes	0			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)		50	50		50	50
Trailing Detector (ft)		0	0		0	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor					0.99	0.97
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3539	0	1770	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3539	0	1747	1532
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25	25		25	
Link Distance (ft)		130	360		500	
Travel Time (s)		3.5	9.8		13.6	
Volume (vph)	0	168	590	0	126	95
Confl. Peds. (#/hr)	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	183	641	0	137	103
Lane Group Flow (vph)	0	183	641	0	137	103
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Total Split (s)	0.0	44.0	44.0	0.0	36.0	36.0
Act Effct Green (s)		61.3	61.3		10.7	10.7
Actuated g/C Ratio		0.77	0.77		0.13	0.13
v/c Ratio		0.13	0.24		0.58	0.50
Uniform Delay, d1		2.4	2.7		32.5	32.1
Delay		4.3	7.2		31.9	31.5
LOS		A	A		C	C
Approach Delay		4.3	7.2			
Approach LOS		A	A			
Queue Length 50th (ft)		12	65		65	49
Queue Length 95th (ft)		60	153		114	91
Internal Link Dist (ft)		50	280		420	
50th Up Block Time (%)						
95th Up Block Time (%)		24%				
Turn Bay Length (ft)					200	200
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)		22				

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 23 (29%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 12.3 Intersection LOS: B
Intersection Capacity Utilization 32.9% ICU Level of Service A

Splits and Phases: 6: Auburn Ravine Road & I-80 Westbound Off-Ramp



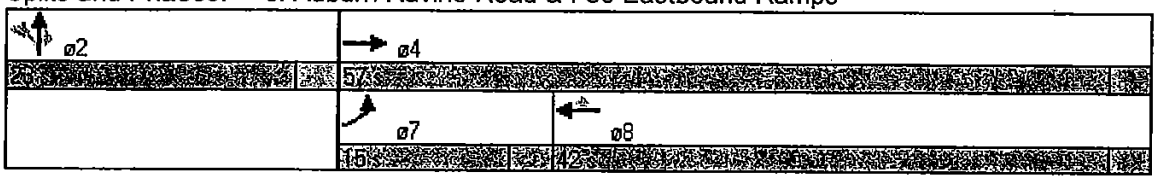


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		225	0		75	200		200	0		0
Storage Lanes	1		0	0		1	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50			50	50	50	50	50			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99					0.97		0.99	0.97			
Frt						0.850			0.850			
Flt Protected	0.950							0.950				
Satd. Flow (prot)	1770	1863	0	0	1863	1583	0	1770	1583	0	0	0
Flt Permitted	0.950							0.950				
Satd. Flow (perm)	1759	1863	0	0	1863	1532	0	1756	1532	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)						176						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		360			210			500			500	
Travel Time (s)		9.8			5.7			13.6			13.6	
Volume (vph)	34	260	0	0	495	254	95	0	105	0	0	0
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	283	0	0	538	276	103	0	114	0	0	0
Lane Group Flow (vph)	37	283	0	0	538	276	0	103	114	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Total Split (s)	15.0	57.0	0.0	0.0	42.0	42.0	23.0	23.0	23.0	0.0	0.0	0.0
Act Effct Green (s)	6.2	62.1			55.4	55.4		10.0	10.0			
Actuated g/C Ratio	0.08	0.78			0.69	0.69		0.13	0.13			
v/c Ratio	0.27	0.20			0.42	0.25		0.47	0.60			
Uniform Delay, d1	36.9	2.4			5.8	1.6		32.6	33.2			
Delay	36.6	0.4			2.0	0.4		31.6	32.3			
LOS	D	A			A	A		C	C			
Approach Delay		4.5			1.4			32.0				
Approach LOS		A			A			C				
Queue Length 50th (ft)	18	0			5	0		49	55			
Queue Length 95th (ft)	44	0			203	0		90	100			
Internal Link Dist (ft)		280			130			420			420	
50th Up Block Time (%)												
95th Up Block Time (%)					8%							
Turn Bay Length (ft)	75					75			200			
50th Bay Block Time %												
95th Bay Block Time %					8%	2%						
Queuing Penalty (veh)					33							

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 61 (76%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 7.1 Intersection LOS: A
Intersection Capacity Utilization 47.5% ICU Level of Service A

Splits and Phases: 8: Auburn Ravine Road & I-80 Eastbound Ramps



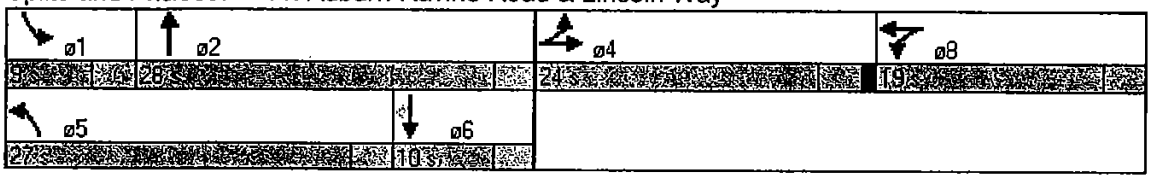


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		125	125		150	175		250	175		175
Storage Lanes	2		0	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	0.99		0.99	1.00		0.99	0.99		0.99		0.97
Frt		0.890			0.979			0.972				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1634	0	1770	3456	0	1770	3420	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3410	1634	0	1761	3456	0	1750	3420	0	1752	3539	1532
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		167			20			29				101
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		210			500			500			500	
Travel Time (s)		5.7			13.6			13.6			13.6	
Volume (vph)	100	70	195	121	351	56	298	118	27	25	85	93
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	76	212	132	382	61	324	128	29	27	92	101
Lane Group Flow (vph)	109	288	0	132	443	0	324	157	0	27	92	101
Turn Type	Split			Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												6
Total Split (s)	24.0	24.0	0.0	19.0	19.0	0.0	27.0	28.0	0.0	9.0	10.0	10.0
Act Effct Green (s)	27.3	27.3		13.3	13.3		17.7	23.8		4.9	5.7	5.7
Actuated g/C Ratio	0.34	0.34		0.17	0.17		0.22	0.30		0.06	0.07	0.07
v/c Ratio	0.09	0.43		0.45	0.75		0.83	0.15		0.25	0.37	0.50
Uniform Delay, d1	19.1	8.5		30.0	30.3		29.7	16.7		39.2	33.7	0.0
Delay	14.1	7.3		29.8	30.1		29.1	16.7		36.2	35.5	8.6
LOS	B	A		C	C		C	B		D	D	A
Approach Delay		9.2			30.0			25.0			23.3	
Approach LOS		A			C			C			C	
Queue Length 50th (ft)	20	0		59	104		154	22		13	23	0
Queue Length 95th (ft)	33	81		110	153		227	46		38	46	45
Internal Link Dist (ft)		130			420			420			420	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	125			125			175			175		175
50th Bay Block Time %												
95th Bay Block Time %					18%		22%					
Queuing Penalty (veh)					11		8					

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 4:EBTL, Start of Yellow, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 59.3% ICU Level of Service A

Splits and Phases: 11: Auburn Ravine Road & Lincoln Way



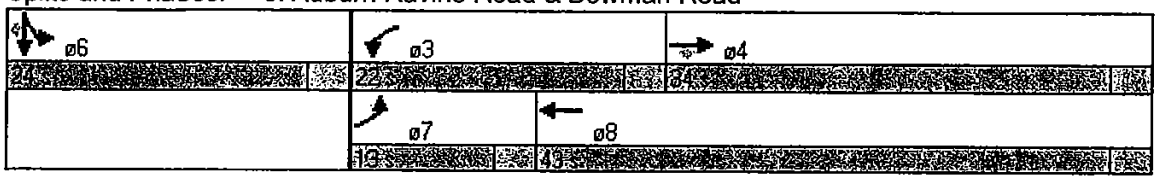


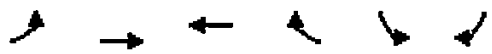
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		300	50		75	0		0	200		200
Storage Lanes	1		1	1		0	0		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50					50	50	50
Trailing Detector (ft)	0	0	0	0	0					0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.97	0.99	0.98					0.99		0.97
Frt			0.850		0.909							0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1660	0	0	0	0	1770	1863	1583
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1760	1863	1532	1753	1660	0	0	0	0	1747	1863	1532
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			50		136							61
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		500			130			500			500	
Travel Time (s)		13.6			3.5			13.6			13.6	
Volume (vph)	85	205	46	211	213	331	0	0	0	200	154	56
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	223	50	229	232	360	0	0	0	217	167	61
Lane Group Flow (vph)	92	223	50	229	592	0	0	0	0	217	167	61
Turn Type	Prot		Perm	Prot						Split		Perm
Protected Phases	7	4		3	8					6	6	
Permitted Phases			4									6
Total Split (s)	13.0	34.0	34.0	22.0	43.0	0.0	0.0	0.0	0.0	24.0	24.0	24.0
Act Effct Green (s)	7.6	40.2	40.2	14.0	48.3					13.9	13.9	13.9
Actuated g/C Ratio	0.10	0.50	0.50	0.18	0.60					0.17	0.17	0.17
v/c Ratio	0.55	0.24	0.06	0.74	0.56					0.71	0.52	0.19
Uniform Delay, d1	35.6	11.2	0.0	31.4	7.2					31.1	30.0	0.0
Delay	34.4	14.0	5.1	15.6	15.9					30.3	28.9	7.4
LOS	C	B	A	B	B					C	C	A
Approach Delay		17.9			15.8						26.6	
Approach LOS		B			B						C	
Queue Length 50th (ft)	44	60	0	52	280					104	77	0
Queue Length 95th (ft)	89	131	21	56	386					159	123	28
Internal Link Dist (ft)		420			50			420			420	
50th Up Block Time (%)				18%	21%							
95th Up Block Time (%)				23%	24%							
Turn Bay Length (ft)	200		300	50						200		200
50th Bay Block Time %				18%	21%							
95th Bay Block Time %				23%	24%							
Queuing Penalty (veh)				167	186							

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 8 (10%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 19.2 Intersection LOS: B
Intersection Capacity Utilization 61.7% ICU Level of Service B

Splits and Phases: 3: Auburn Ravine Road & Bowman Road



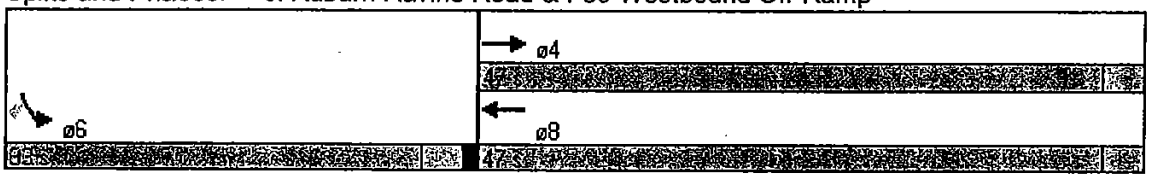


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	200	200
Storage Lanes	0			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)		50	50		50	50
Trailing Detector (ft)		0	0		0	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor					0.99	0.97
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3539	0	1770	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3539	0	1747	1532
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25	25		25	
Link Distance (ft)		130	360		500	
Travel Time (s)		3.5	9.8		13.6	
Volume (vph)	0	405	675	0	150	80
Confl. Peds. (#/hr)	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	440	734	0	163	87
Lane Group Flow (vph)	0	440	734	0	163	87
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Total Split (s)	0.0	47.0	47.0	0.0	33.0	33.0
Act Effct Green (s)		60.1	60.1		11.9	11.9
Actuated g/C Ratio		0.75	0.75		0.15	0.15
v/c Ratio		0.31	0.28		0.62	0.38
Uniform Delay, d1		3.2	3.1		31.9	30.7
Delay		6.9	5.3		31.3	29.7
LOS		A	A		C	C
Approach Delay		6.9	5.3			
Approach LOS		A	A			
Queue Length 50th (ft)		126	46		78	40
Queue Length 95th (ft)		173	141		129	77
Internal Link Dist (ft)		50	280		420	
50th Up Block Time (%)		16%				
95th Up Block Time (%)		21%				
Turn Bay Length (ft)					200	200
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)		80				

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 8 (10%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 10.2 Intersection LOS: B
Intersection Capacity Utilization 39.5% ICU Level of Service A

Splits and Phases: 6: Auburn Ravine Road & I-80 Westbound Off-Ramp



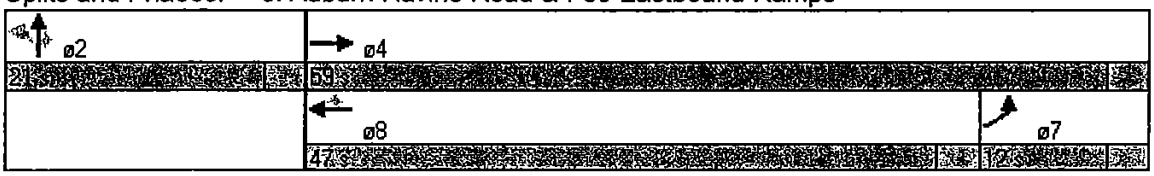


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		225	0		75	200		200	0		0
Storage Lanes	1		0	0		1	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50			50	50	50	50	50			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99					0.97		0.99	0.97			
Frt						0.850			0.850			
Flt Protected	0.950							0.954				
Satd. Flow (prot)	1770	1863	0	0	1863	1583	0	1777	1583	0	0	0
Flt Permitted	0.950							0.954				
Satd. Flow (perm)	1759	1863	0	0	1863	1532	0	1764	1532	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)						197						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		360			210			500			500	
Travel Time (s)		9.8			5.7			13.6			13.6	
Volume (vph)	99	456	0	0	459	233	216	7	375	0	0	0
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	496	0	0	499	253	235	8	408	0	0	0
Lane Group Flow (vph)	108	496	0	0	499	253	0	243	408	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Total Split (s)	12.0	59.0	0.0	0.0	47.0	47.0	21.0	21.0	21.0	0.0	0.0	0.0
Act Effct Green (s)	8.0	55.0			45.4	45.4		17.0	17.0			
Actuated g/C Ratio	0.10	0.69			0.57	0.57		0.21	0.21			
v/c Ratio	0.61	0.39			0.47	0.26		0.65	1.25			
Uniform Delay, d1	36.2	5.3			10.6	1.8		28.7	31.5			
Delay	38.9	4.3			4.7	0.5		29.8	140.6			
LOS	D	A			A	A		C	F			
Approach Delay		10.5			3.3			99.2				
Approach LOS		B			A			F				
Queue Length 50th (ft)	46	27			108	0		112	~259			
Queue Length 95th (ft)	#123	131			m100	m0		188	#428			
Internal Link Dist (ft)		280			130			420			420	
50th Up Block Time (%)												
95th Up Block Time (%)									9%			
Turn Bay Length (ft)	75					75			200			
50th Bay Block Time %					10%				29%			
95th Bay Block Time %	46%	27%			8%			3%	58%			
Queuing Penalty (veh)	114	14			23				106			

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 58 (73%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 36.6 Intersection LOS: D
Intersection Capacity Utilization 62.3% ICU Level of Service B
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Auburn Ravine Road & I-80 Eastbound Ramps



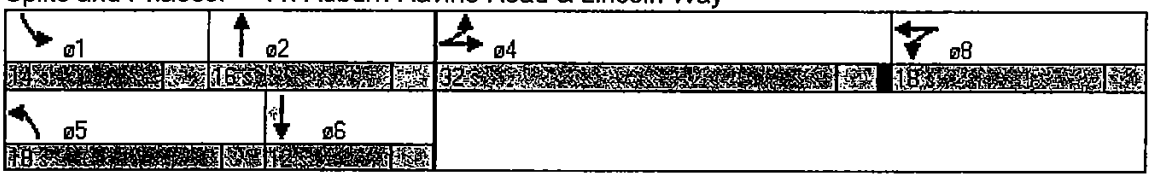


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		125	125		150	175		250	175		175
Storage Lanes	2		0	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	0.99		1.00	1.00		0.99	0.99		0.99		0.97
Frt		0.926			0.962			0.956				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1708	0	1770	3388	0	1770	3351	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3403	1708	0	1763	3388	0	1753	3351	0	1759	3539	1532
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		68			51			67				266
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		210			500			500			500	
Travel Time (s)		5.7			13.6			13.6			13.6	
Volume (vph)	369	224	218	39	172	59	275	331	138	132	184	245
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	401	243	237	42	187	64	299	360	150	143	200	266
Lane Group Flow (vph)	401	480	0	42	251	0	299	510	0	143	200	266
Turn Type	Split			Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												6
Total Split (s)	32.0	32.0	0.0	18.0	18.0	0.0	18.0	16.0	0.0	14.0	12.0	12.0
Act Effct Green (s)	33.6	33.6		8.9	8.9		14.0	12.5		9.1	7.6	7.6
Actuated g/C Ratio	0.42	0.42		0.11	0.11		0.18	0.16		0.11	0.10	0.10
v/c Ratio	0.28	0.63		0.21	0.59		0.96	0.88		0.71	0.60	0.69
Uniform Delay, d1	15.3	15.5		32.4	26.8		32.8	28.6		34.2	34.7	0.0
Delay	25.7	27.8		31.4	26.4		68.2	42.5		38.6	34.9	6.5
LOS	C	C		C	C		E	D		D	C	A
Approach Delay		26.8			27.1			52.0			23.4	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	86	182		19	50		150	116		69	51	0
Queue Length 95th (ft)	m109	m254		47	83		#302	#209		#145	84	#75
Internal Link Dist (ft)		130			420			420			420	
50th Up Block Time (%)		21%										
95th Up Block Time (%)		34%										
Turn Bay Length (ft)	125			125			175			175		175
50th Bay Block Time %		21%										
95th Bay Block Time %		35%					48%	20%				
Queuing Penalty (veh)		243					60	29				

Intersection Summary

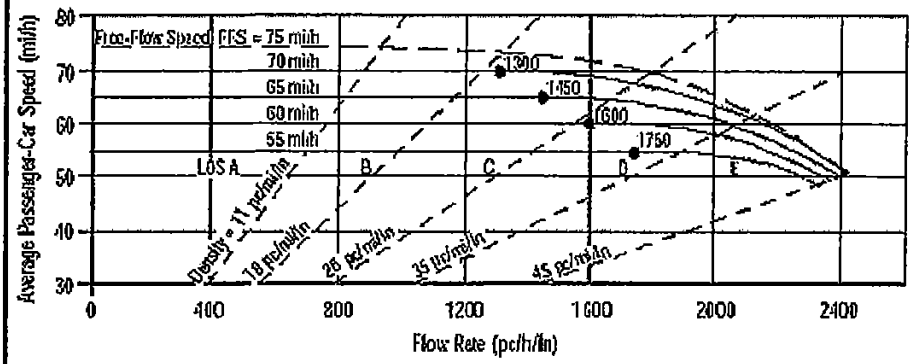
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 4:EBTL, Start of Yellow, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 67.5% ICU Level of Service B
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Auburn Ravine Road & Lincoln Way



I-80 FREEWAY MAINLINE

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs			
Volume, V	1572 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	11
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments			
f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.851

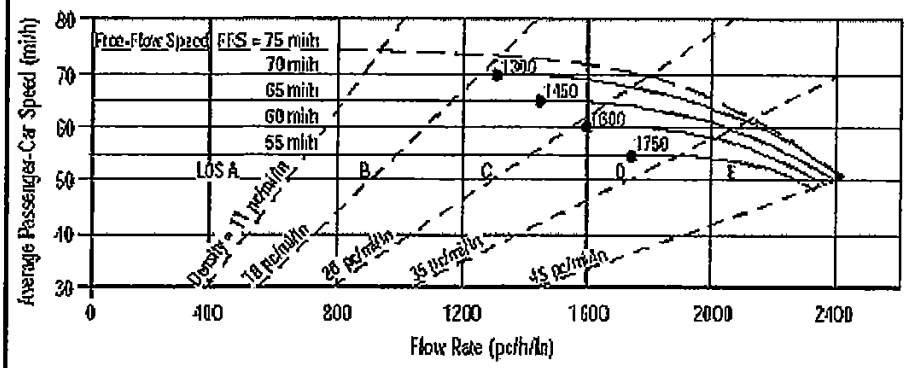
Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	12.0	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	6.0	ft	f_{LC}		mi/h
Interchange Density	0.50	I/mi	f_{ID}		mi/h
Number of Lanes, N	3		f_N		mi/h
FFS (measured)	70.0	mi/h	FFS	70.0	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	669	pc/h/ln	Design LOS		
S	70.0	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	9.6	pc/mi/ln	S		mi/h
LOS	A		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	1484 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	11
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.851

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	632	pc/h/ln
S	70.0	mi/h
D = v_p / S	9.0	pc/mi/ln
LOS	A	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

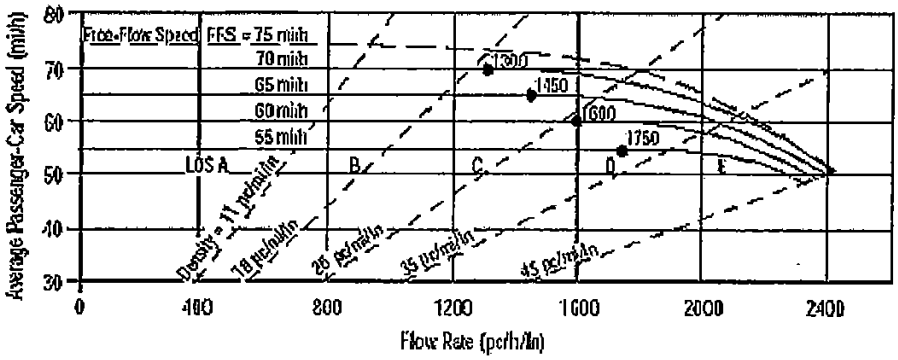
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	1971 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	6
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.909

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	786	pc/h/ln
S	70.0	mi/h
D = v_p / S	11.2	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

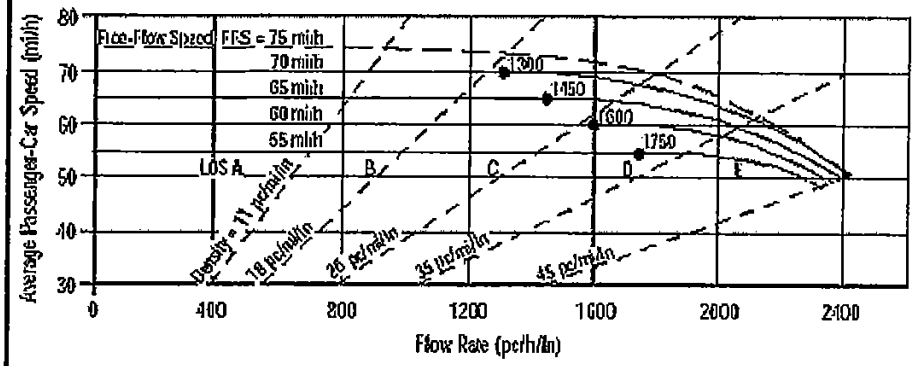
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2287 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	6
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.909

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	911	pc/h/ln
S	70.0	mi/h
D = v_p / S	13.0	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

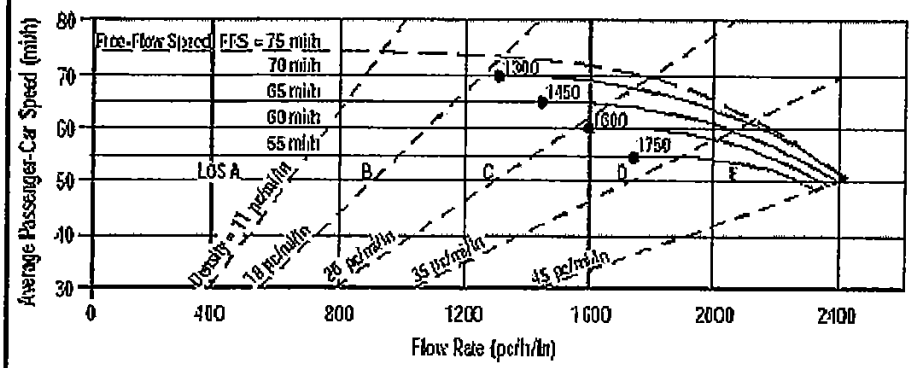
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2531 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1022	pc/h/ln
S	70.0	mi/h
D = v_p / S	14.6	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

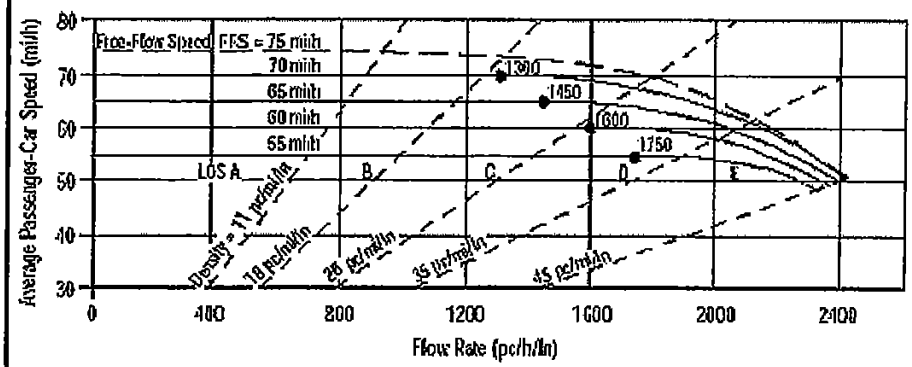
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing Conditions

Project Description: Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2790 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1127	pc/h/ln
S	70.0	mi/h
D = v_p / S	16.1	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

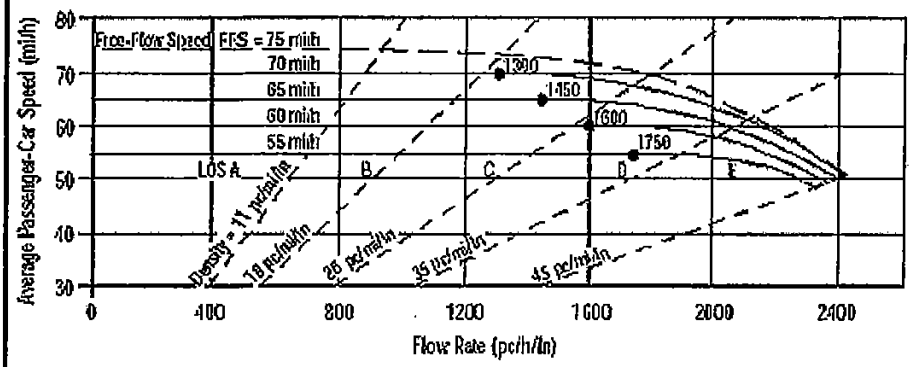
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs			
Volume, V	1945 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments			
f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

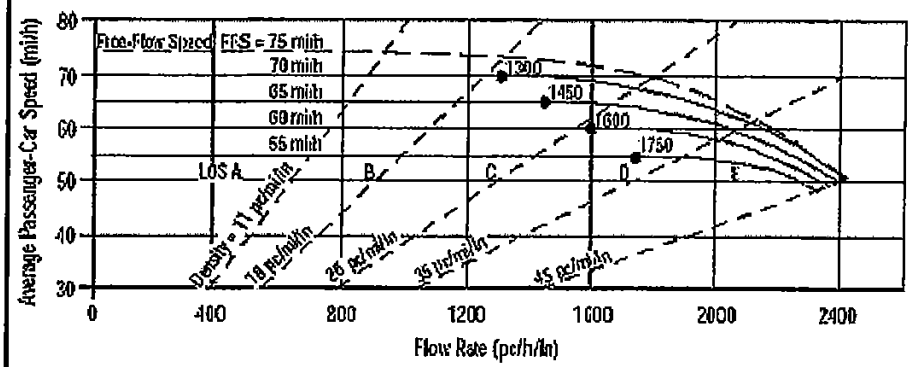
Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	12.0	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	6.0	ft	f_{LC}		mi/h
Interchange Density	0.50	I/mi	f_{ID}		mi/h
Number of Lanes, N	3		f_N		mi/h
FFS (measured)	70.0	mi/h	FFS	70.0	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**	
Operational (LOS)			Design (N)	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	786	pc/h/ln	Design LOS	
S	70.0	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
D = v_p / S	11.2	pc/mi/ln	S	mi/h
LOS	B		D = v_p / S	pc/mi/ln
			Required Number of Lanes, N	

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2126 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	859	pc/h/ln
S	70.0	mi/h
D = v_p / S	12.3	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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FREEWAY RAMP JUNCTIONS

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp
■ Yes ■ On
■ No ■ Off
L_{up} = ft
Vu = veh/h

Terrain

S_{FF} = 55.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp
■ Yes ■ On
■ No ■ Off
L_{down} = ft
VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1750	0.92	Rolling	6	1	0.909	1.00	2092
Ramp	537	0.92	Rolling	5	1	0.922	1.00	633
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 0.591 using Equation (Exhibit 25-5)

V_{12}= 1237 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2725	6750	No
V_{R12}	1870	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 16.6 (pc/ mi /ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.311 (Exibit 25-19)

S_R= 51.0 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S= 51.8 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (If not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = (pc/ mi /ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp	Terrain	Downstream Adj Ramp
■ Yes ■ On		■ Yes ■ On
■ No ■ Off		■ No ■ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 55.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D,V_R,V_f)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1971	0.92	Rolling	6	1	0.909	1.00	2357
Ramp	221	0.92	Rolling	5	1	0.922	1.00	261
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.689 using Equation (Exhibit 25-11)

V_{12} = 1705 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	2357	6750	No
V_{12}	1705	4400:All	No
$V_{FO} = V_F - V_R$	2096	6750	No
V_R	261	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 14.4 (pc/ mi /ln)

LOS= B (Exhibit 25-4)

Speed Estimation

D_s = 0.451 (Exhibit 25-19)

S_R= 49.1 mph (Exhibit 25-19)

S_0= 60.3 mph (Exhibit 25-19)

S = 51.8 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp	Terrain	Downstream Adj Ramp
■ Yes ■ On		■ Yes ■ On
■ No ■ Off		■ No ■ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 55.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1284	0.92	Rolling	11	1	0.851	1.00	1640
Ramp	288	0.92	Rolling	5	1	0.922	1.00	340
UpStream								
DownStream								

Merge Areas	Diverge Areas
Estimation of v_{12}	**Estimation of v_{12}**
$V_{12} = V_F (P_{FM})$	$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-2 or 25-3)	L_{EQ} = (Equation 25-8 or 25-9)
P_{FM}= 0.591 using Equation (Exhibit 25-5)	P_{FD} = using Equation (Exhibit 25-11)
V_{12}= 970 pc/h	V_{12} = pc/h
Capacity Checks	**Capacity Checks**

	Actual	Maximum	LOS F?
V_{FO}	1980	6750	No
V_{R12}	1310	4600:All	No

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)	Level of Service Determination (if not F)
$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$	$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$
D_R = 12.4 (pc/ mi /ln)	D_R = (pc/ mi /ln)
LOS = B (Exhibit 25-4)	LOS= (Exhibit 25-4)
Speed Estimation	**Speed Estimation**
M_S = 0.300 (Exibit 25-19)	D_s = (Exhibit 25-19)
S_R= 51.1 mph (Exhibit 25-19)	S_R= mph (Exhibit 25-19)
S_0= N/A mph (Exhibit 25-19)	S_0= mph (Exhibit 25-19)
S= 52.2 mph (Exhibit 25-14)	S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing Conditions

Project Description: Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp: ■ Yes ■ On ■ No ■ Off
L_{up} = ft
Vu = veh/h

Terrain

S_{FF} = 55.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp: ■ Yes ■ On ■ No ■ Off
L_{down} = ft
VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1484	0.92	Rolling	11	1	0.851	1.00	1895
Ramp	200	0.92	Rolling	5	1	0.922	1.00	236
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)
P_{FM}= using Equation (Exhibit 25-5)
V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/ mi /ln)
LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)
S_R= mph (Exhibit 25-19)
S_0= mph (Exhibit 25-19)
S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)
P_{FD} = 0.702 using Equation (Exhibit 25-11)
V_{12} = 1400 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	1895	6750	No
V_{12}	1400	4400:All	No
$V_{FO} = V_F - V_R$	1659	6750	No
V_R	236	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = 11.8 (pc/ mi /ln)
LOS= B (Exhibit 25-4)

Speed Estimation

D_s = 0.449 (Exhibit 25-19)
S_R= 49.2 mph (Exhibit 25-19)
S_0= 60.3 mph (Exhibit 25-19)
S = 51.7 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{up} = ft

Vu = veh/h

Terrain

S_{FF} = 55.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{down} = ft

VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1715	0.92	Rolling	7	1	0.897	1.00	2079
Ramp	411	0.92	Rolling	5	1	0.922	1.00	485
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 0.591 using Equation (Exhibit 25-5)

V_{12}= 1230 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2564	6750	No
V_{R12}	1715	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 15.5 (pc/ mi /ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.308 (Exibit 25-19)

S_R= 51.0 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S= 51.9 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = (pc/ mi /ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing Conditions

Project Description: Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp	Terrain	Downstream Adj Ramp
■ Yes ■ On		■ Yes ■ On
■ No ■ Off		■ No ■ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 55.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1945	0.92	Rolling	7	1	0.897	1.00	2357
Ramp	230	0.92	Rolling	5	1	0.922	1.00	271
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.689 using Equation (Exhibit 25-11)

V_{12} = 1707 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	2357	6750	No
V_{12}	1707	4400:All	No
$V_{FO} = V_F - V_R$	2086	6750	No
V_R	271	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 14.4 (pc/ mi /ln)

LOS= B (Exhibit 25-4)

Speed Estimation

D_s = 0.452 (Exhibit 25-19)

S_R= 49.1 mph (Exhibit 25-19)

S_0= 60.3 mph (Exhibit 25-19)

S = 51.8 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{up} = ft

Vu = veh/h

Terrain

S_{FF} = 55.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{down} = ft

VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2192	0.92	Rolling	7	1	0.897	1.00	2657
Ramp	339	0.92	Rolling	5	1	0.922	1.00	400
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 0.591 using Equation (Exhibit 25-5)

V_{12}= 1572 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3057	6750	No
V_{R12}	1972	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 17.5 (pc/ mi /ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.314 (Exibit 25-19)

S_R= 50.9 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S= 51.6 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = (pc/ mi /ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing Conditions

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{up} = ft

Vu = veh/h

Terrain

S_{FF} = 55.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{down} = ft

VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2790	0.92	Rolling	7	1	0.897	1.00	3381
Ramp	598	0.92	Rolling	5	1	0.922	1.00	705
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.643 using Equation (Exhibit 25-11)

V_{12} = 2426 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	3381	6750	No
V_{12}	2426	4400:All	No
$V_{FO} = V_F - V_R$	2676	6750	No
V_R	705	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 20.6 (pc/ mi /ln)

LOS= C (Exhibit 25-4)

Speed Estimation

D_s = 0.491 (Exhibit 25-19)

S_R= 48.6 mph (Exhibit 25-19)

S_0= 60.3 mph (Exhibit 25-19)

S = 51.4 mph (Exhibit 25-15)

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APPENDIX B

EXISTING + PROJECT CONDITIONS
LEVEL OF SERVICE CALCULATION WORKSHEETS

STUDY INTERSECTIONS

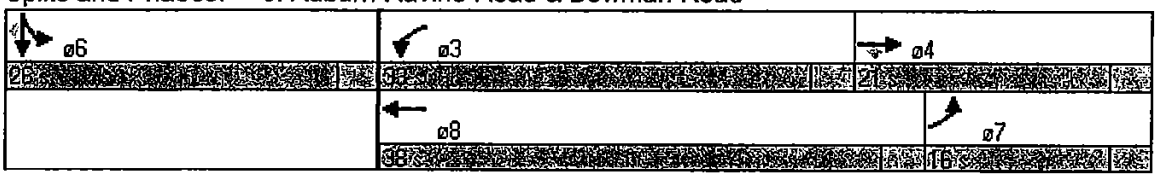


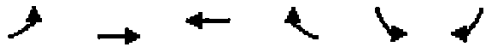
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		300	50		75	0		0	200		200
Storage Lanes	1		1	1		0	0		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50					50	50	50
Trailing Detector (ft)	0	0	0	0	0					0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.97	0.99	0.98					0.99		0.97
Frt			0.850		0.916							0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1675	0	0	0	0	1770	1863	1583
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1759	1863	1532	1750	1675	0	0	0	0	1747	1863	1532
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			59		100							60
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		500			130			500			500	
Travel Time (s)		13.6			3.5			13.6			13.6	
Volume (vph)	41	71	54	343	206	262	0	0	0	134	196	55
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	77	59	373	224	285	0	0	0	146	213	60
Lane Group Flow (vph)	45	77	59	373	509	0	0	0	0	146	213	60
Turn Type	Prot		Perm	Prot						Split		Perm
Protected Phases	7	4		3	8					6	6	
Permitted Phases			4									6
Total Split (s)	16.0	21.0	21.0	33.0	38.0	0.0	0.0	0.0	0.0	26.0	26.0	26.0
Act Effct Green (s)	12.0	31.8	31.8	23.3	49.4					13.0	13.0	13.0
Actuated g/C Ratio	0.15	0.40	0.40	0.29	0.62					0.16	0.16	0.16
v/c Ratio	0.17	0.10	0.09	0.72	0.47					0.51	0.71	0.20
Uniform Delay, d1	34.4	15.2	0.0	25.4	6.9					30.6	31.7	0.0
Delay	30.2	20.5	6.9	18.3	4.2					29.6	30.9	7.7
LOS	C	C	A	B	A					C	C	A
Approach Delay		18.4			10.2						27.1	
Approach LOS		B			B						C	
Queue Length 50th (ft)	20	27	0	44	24					68	102	0
Queue Length 95th (ft)	49	64	28	114	34					112	158	29
Internal Link Dist (ft)		420			50			420			420	
50th Up Block Time (%)				5%	4%							
95th Up Block Time (%)				54%	15%							
Turn Bay Length (ft)	200		300	50						200		200
50th Bay Block Time %				5%	4%							
95th Bay Block Time %				54%	15%							
Queuing Penalty (veh)				258	65							

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 75 (94%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 55.5% ICU Level of Service A

Splits and Phases: 3: Auburn Ravine Road & Bowman Road



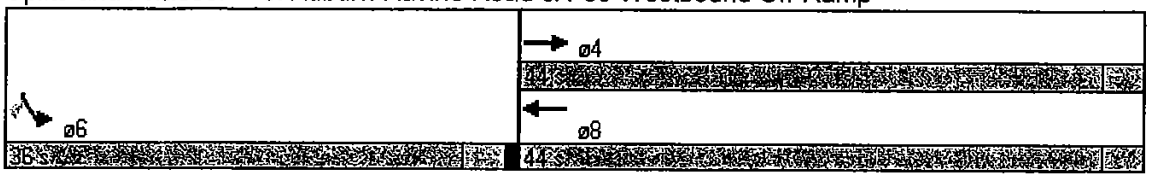


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	200	200
Storage Lanes	0			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)		50	50		50	50
Trailing Detector (ft)		0	0		0	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor					0.99	0.97
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3539	0	1770	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3539	0	1747	1532
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25	25		25	
Link Distance (ft)		130	360		500	
Travel Time (s)		3.5	9.8		13.6	
Volume (vph)	0	205	716	0	155	95
Confl. Peds. (#/hr)	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	223	778	0	168	103
Lane Group Flow (vph)	0	223	778	0	168	103
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Total Split (s)	0.0	44.0	44.0	0.0	36.0	36.0
Act Effct Green (s)		60.1	60.1		11.9	11.9
Actuated g/C Ratio		0.75	0.75		0.15	0.15
v/c Ratio		0.16	0.29		0.64	0.45
Uniform Delay, d1		2.8	3.2		32.0	31.1
Delay		5.4	9.1		31.4	30.2
LOS		A	A		C	C
Approach Delay		5.4	9.1			
Approach LOS		A	A			
Queue Length 50th (ft)		26	143		80	48
Queue Length 95th (ft)		76	182		133	89
Internal Link Dist (ft)		50	280		420	
50th Up Block Time (%)						
95th Up Block Time (%)		30%				
Turn Bay Length (ft)					200	200
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)		33				

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 23 (29%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 13.1 Intersection LOS: B
Intersection Capacity Utilization 38.1% ICU Level of Service A

Splits and Phases: 6: Auburn Ravine Road & I-80 Westbound Off-Ramp



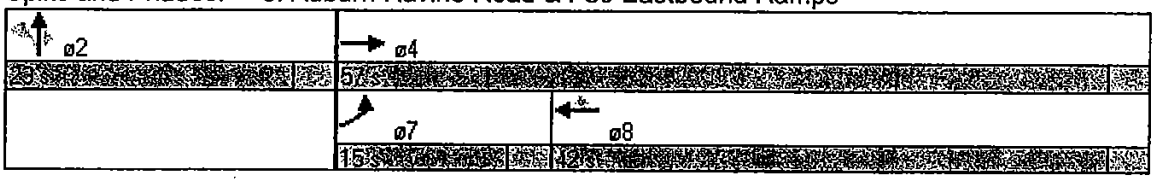


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		225	0		75	200		200	0		0
Storage Lanes	1		0	0		1	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50			50	50	50	50	50			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97		0.99	0.97			
Frt						0.850			0.850			
Flt Protected	0.950							0.950				
Satd. Flow (prot)	1770	1863	0	0	1863	1583	0	1770	1583	0	0	0
Flt Permitted	0.950							0.950				
Satd. Flow (perm)	1761	1863	0	0	1863	1532	0	1756	1532	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)						172						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		360			210			500			500	
Travel Time (s)		9.8			5.7			13.6			13.6	
Volume (vph)	34	326	0	0	621	311	95	0	127	0	0	0
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	354	0	0	675	338	103	0	138	0	0	0
Lane Group Flow (vph)	37	354	0	0	675	338	0	103	138	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Total Split (s)	15.0	57.0	0.0	0.0	42.0	42.0	23.0	23.0	23.0	0.0	0.0	0.0
Act Effct Green (s)	6.2	60.9			54.2	54.2		11.1	11.1			
Actuated g/C Ratio	0.08	0.76			0.68	0.68		0.14	0.14			
v/c Ratio	0.27	0.25			0.53	0.31		0.42	0.65			
Uniform Delay, d1	36.9	2.8			7.1	2.5		31.5	32.6			
Delay	35.9	1.1			4.1	1.1		30.4	31.8			
LOS	D	A			A	A		C	C			
Approach Delay		4.4			3.1			31.2				
Approach LOS		A			A			C				
Queue Length 50th (ft)	17	0			14	0		48	66			
Queue Length 95th (ft)	43	23			m274	m18		88	115			
Internal Link Dist (ft)		280			130			420			420	
50th Up Block Time (%)					2%							
95th Up Block Time (%)					12%							
Turn Bay Length (ft)	75					75			200			
50th Bay Block Time %					2%							
95th Bay Block Time %					11%	5%						
Queuing Penalty (veh)					58	16						

Intersection Summary

Area Type: Other
Cycle Length: 80
Actual Cycle Length: 80
Offset: 61 (76%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 7.5 Intersection LOS: A
Intersection Capacity Utilization 54.7% ICU Level of Service A
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Auburn Ravine Road & I-80 Eastbound Ramps



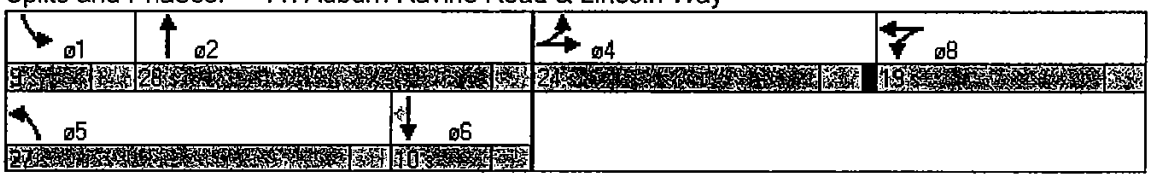


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		125	125		150	175		250	175		175
Storage Lanes	2		0	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		0.99	0.99		0.99		0.97
Frt		0.917			0.980			0.952				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1690	0	1770	3459	0	1770	3334	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3416	1690	0	1762	3459	0	1750	3334	0	1753	3539	1532
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		74			19			61				101
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		210			500			500			500	
Travel Time (s)		5.7			13.6			13.6			13.6	
Volume (vph)	100	158	195	191	534	84	298	118	56	55	85	93
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	172	212	208	580	91	324	128	61	60	92	101
Lane Group Flow (vph)	109	384	0	208	671	0	324	189	0	60	92	101
Turn Type	Split			Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												6
Total Split (s)	24.0	24.0	0.0	19.0	19.0	0.0	27.0	28.0	0.0	9.0	10.0	10.0
Act Effct Green (s)	25.6	25.6		15.0	15.0		17.7	20.2		5.0	5.7	5.7
Actuated g/C Ratio	0.32	0.32		0.19	0.19		0.22	0.25		0.06	0.07	0.07
v/c Ratio	0.10	0.65		0.63	1.01		0.83	0.21		0.55	0.37	0.50
Uniform Delay, d1	19.5	18.9		29.9	31.6		29.7	15.7		37.5	34.8	0.0
Delay	15.8	20.1		30.7	63.9		29.1	15.4		43.6	35.5	8.6
LOS	B	C		C	E		C	B		D	D	A
Approach Delay		19.2			56.0			24.0			26.7	
Approach LOS		B			E			C			C	
Queue Length 50th (ft)	19	111		97	~176		154	26		30	23	0
Queue Length 95th (ft)	38	#278		166	#292		227	48		#80	46	45
Internal Link Dist (ft)		130			420			420			420	
50th Up Block Time (%)												
95th Up Block Time (%)		25%										
Turn Bay Length (ft)	125			125			175			175		175
50th Bay Block Time %		6%			26%							
95th Bay Block Time %		28%		26%	53%		22%					
Queuing Penalty (veh)		66		43	82		10					

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 4:EBTL, Start of Yellow, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 36.4 Intersection LOS: D
Intersection Capacity Utilization 68.4% ICU Level of Service B
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Auburn Ravine Road & Lincoln Way



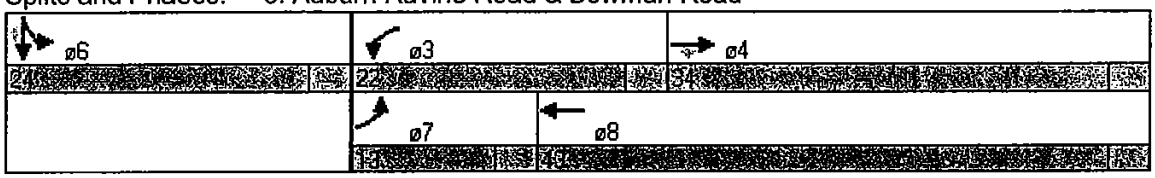


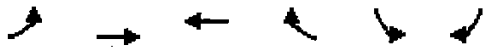
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		300	50		75	0		0	200		200
Storage Lanes	1		1	1		0	0		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50					50	50	50
Trailing Detector (ft)	0	0	0	0	0					0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97	0.99	0.98					0.99		0.97
Frt			0.850		0.911							0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1664	0	0	0	0	1770	1863	1583
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1761	1863	1532	1754	1664	0	0	0	0	1747	1863	1532
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			50		129							61
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		500			130			500			500	
Travel Time (s)		13.6			3.5			13.6			13.6	
Volume (vph)	85	243	46	248	250	368	0	0	0	238	154	56
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	264	50	270	272	400	0	0	0	259	167	61
Lane Group Flow (vph)	92	264	50	270	672	0	0	0	0	259	167	61
Turn Type	Prot		Perm	Prot						Split		Perm
Protected Phases	7	4		3	8					6	6	
Permitted Phases			4									6
Total Split (s)	13.0	34.0	34.0	22.0	43.0	0.0	0.0	0.0	0.0	24.0	24.0	24.0
Act Effct Green (s)	7.6	37.4	37.4	15.3	46.9					15.3	15.3	15.3
Actuated g/C Ratio	0.10	0.47	0.47	0.19	0.59					0.19	0.19	0.19
v/c Ratio	0.55	0.30	0.07	0.80	0.65					0.76	0.47	0.18
Uniform Delay, d1	35.6	13.2	0.0	30.9	8.9					30.6	28.7	0.0
Delay	34.4	15.7	5.3	19.2	17.4					30.0	27.8	7.2
LOS	C	B	A	B	B					C	C	A
Approach Delay		18.6			18.0						26.4	
Approach LOS		B			B						C	
Queue Length 50th (ft)	44	83	0	52	330					123	75	0
Queue Length 95th (ft)	89	155	21	#99	437					190	123	28
Internal Link Dist (ft)		420			50			420			420	
50th Up Block Time (%)				20%	22%							
95th Up Block Time (%)				68%	22%							
Turn Bay Length (ft)	200		300	50						200		200
50th Bay Block Time %				20%	22%							
95th Bay Block Time %				68%	22%					4%		
Queuing Penalty (veh)				418	208							

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 8 (10%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 20.3 Intersection LOS: C
Intersection Capacity Utilization 68.6% ICU Level of Service B
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Auburn Ravine Road & Bowman Road



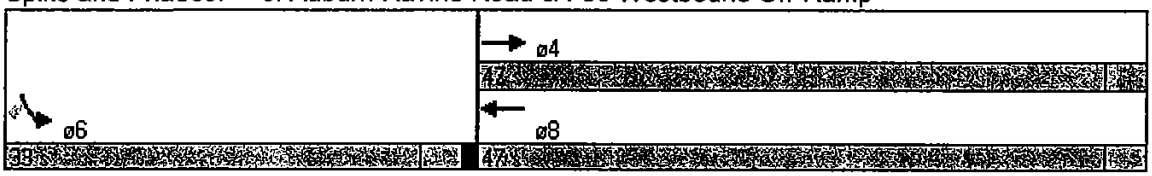


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	200	200
Storage Lanes	0			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)		50	50		50	50
Trailing Detector (ft)		0	0		0	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor					0.99	0.97
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	3539	0	1770	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	3539	0	1747	1532
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25	25		25	
Link Distance (ft)		130	360		500	
Travel Time (s)		3.5	9.8		13.6	
Volume (vph)	0	481	786	0	169	80
Confl. Peds. (#/hr)	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	523	854	0	184	87
Lane Group Flow (vph)	0	523	854	0	184	87
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Total Split (s)	0.0	47.0	47.0	0.0	33.0	33.0
Act Effct Green (s)		59.2	59.2		12.8	12.8
Actuated g/C Ratio		0.74	0.74		0.16	0.16
v/c Ratio		0.38	0.33		0.65	0.36
Uniform Delay, d1		3.8	3.6		31.5	29.9
Delay		7.4	5.1		30.9	28.8
LOS		A	A		C	C
Approach Delay		7.4	5.1			
Approach LOS		A	A			
Queue Length 50th (ft)		150	60		87	39
Queue Length 95th (ft)		201	159		142	75
Internal Link Dist (ft)		50	280		420	
50th Up Block Time (%)		17%				
95th Up Block Time (%)		23%				
Turn Bay Length (ft)					200	200
50th Bay Block Time %						
95th Bay Block Time %						
Queuing Penalty (veh)		104				

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 8 (10%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 10.0 Intersection LOS: A
Intersection Capacity Utilization 44.8% ICU Level of Service A

Splits and Phases: 6: Auburn Ravine Road & I-80 Westbound Off-Ramp



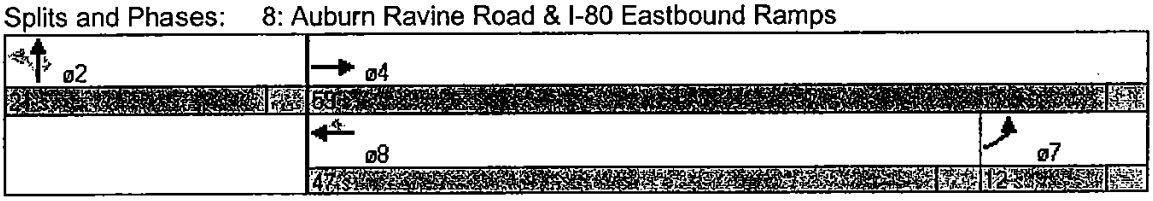


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		225	0		75	200		200	0		0
Storage Lanes	1		0	0		1	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50			50	50	50	50	50			
Trailing Detector (ft)	0	0			0	0	0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99					0.97		0.99	0.97			
Frt						0.850			0.850			
Flt Protected	0.950							0.954				
Satd. Flow (prot)	1770	1863	0	0	1863	1583	0	1777	1583	0	0	0
Flt Permitted	0.950							0.954				
Satd. Flow (perm)	1760	1863	0	0	1863	1532	0	1764	1532	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)						193						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		360			210			500			500	
Travel Time (s)		9.8			5.7			13.6			13.6	
Volume (vph)	99	551	0	0	570	283	216	7	451	0	0	0
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	599	0	0	620	308	235	8	490	0	0	0
Lane Group Flow (vph)	108	599	0	0	620	308	0	243	490	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Total Split (s)	12.0	59.0	0.0	0.0	47.0	47.0	21.0	21.0	21.0	0.0	0.0	0.0
Act Effct Green (s)	8.0	55.0			45.4	45.4		17.0	17.0			
Actuated g/C Ratio	0.10	0.69			0.57	0.57		0.21	0.21			
v/c Ratio	0.61	0.47			0.59	0.32		0.65	1.50			
Uniform Delay, d1	36.2	5.7			11.6	3.2		28.7	31.5			
Delay	40.7	5.6			5.9	0.6		29.8	201.7			
LOS	D	A			A	A		C	F			
Approach Delay		11.0			4.2			144.7				
Approach LOS		B			A			F				
Queue Length 50th (ft)	53	73			182	0		112	~346			
Queue Length 95th (ft)	#125	155			m206	m0		188	#526			
Internal Link Dist (ft)		280			130			420			420	
50th Up Block Time (%)					10%							
95th Up Block Time (%)					8%				27%			
Turn Bay Length (ft)	75					75			200			
50th Bay Block Time %		6%			10%				48%			
95th Bay Block Time %	45%	27%			9%			3%	66%			
Queuing Penalty (veh)	135	18			85				138			

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 58 (73%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.50
Intersection Signal Delay: 49.7 Intersection LOS: D
Intersection Capacity Utilization 69.1% ICU Level of Service B
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Auburn Ravine Road & I-80 Eastbound Ramps



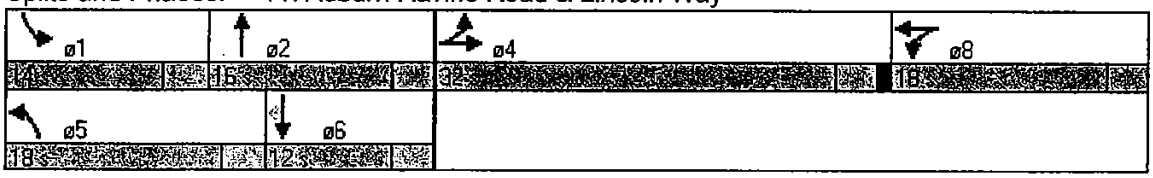


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		125	125		150	175		250	175		175
Storage Lanes	2		0	1		0	1		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	50
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	0.99	0.99		1.00	1.00		0.99	0.99		0.99		0.97
Frt		0.947			0.963			0.935				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1752	0	1770	3392	0	1770	3263	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3411	1752	0	1764	3392	0	1753	3263	0	1760	3539	1532
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			47			201				266
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		210			500			500			500	
Travel Time (s)		5.7			13.6			13.6			13.6	
Volume (vph)	369	395	218	76	333	108	275	331	252	227	184	245
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	401	429	237	83	362	117	299	360	274	247	200	266
Lane Group Flow (vph)	401	666	0	83	479	0	299	634	0	247	200	266
Turn Type	Split			Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												6
Total Split (s)	32.0	32.0	0.0	18.0	18.0	0.0	18.0	16.0	0.0	14.0	12.0	12.0
Act Effct Green (s)	29.1	29.1		12.9	12.9		14.0	12.0		10.0	8.0	8.0
Actuated g/C Ratio	0.36	0.36		0.16	0.16		0.18	0.15		0.13	0.10	0.10
v/c Ratio	0.32	1.01		0.29	0.81		0.96	0.96		1.12	0.56	0.68
Uniform Delay, d1	18.3	24.0		29.5	29.1		32.8	23.0		35.0	34.3	0.0
Delay	29.1	44.1		29.3	30.9		68.2	43.9		113.9	34.7	6.5
LOS	C	D		C	C		E	D		F	C	A
Approach Delay		38.4			30.7			51.7			51.6	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	98	~327		36	108		150	116		~144	51	0
Queue Length 95th (ft)	m102	m#365		76	#173		#302	#225		#282	84	#75
Internal Link Dist (ft)		130			420			420			420	
50th Up Block Time (%)		34%										
95th Up Block Time (%)		50%										
Turn Bay Length (ft)	125			125			175			175		175
50th Bay Block Time %		34%										
95th Bay Block Time %		50%			23%		48%	25%		44%		
Queuing Penalty (veh)		445			9		75	37		22		

Intersection Summary

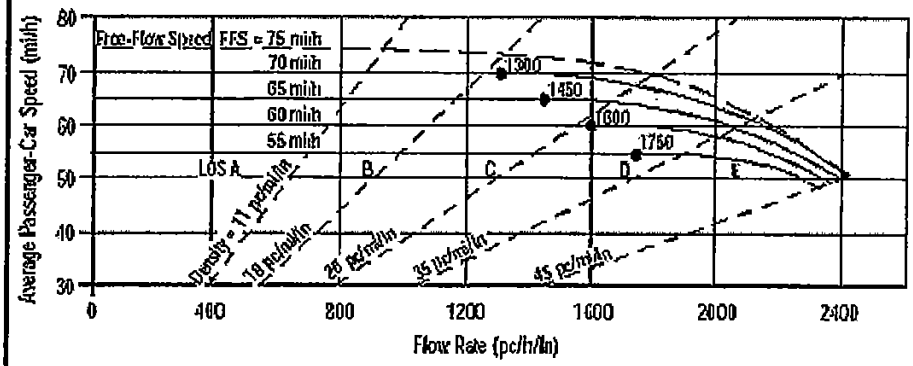
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 4:EBTL, Start of Yellow, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 43.7 Intersection LOS: D
Intersection Capacity Utilization 87.8% ICU Level of Service D
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Auburn Ravine Road & Lincoln Way



I-80 FREEWAY MAINLINE

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	1629 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	11
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.851

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	694	pc/h/ln
S	70.0	mi/h
D = v_p / S	9.9	pc/mi/ln
LOS	A	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

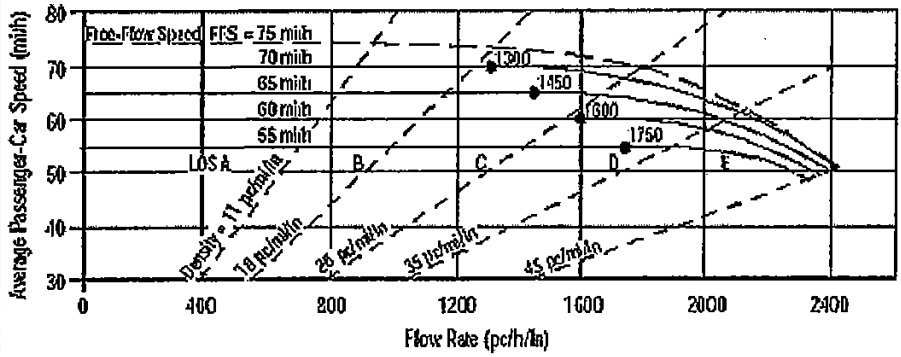
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	1506 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	11
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.851

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	641	pc/h/ln
S	70.0	mi/h
D = v_p / S	9.2	pc/mi/ln
LOS	A	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

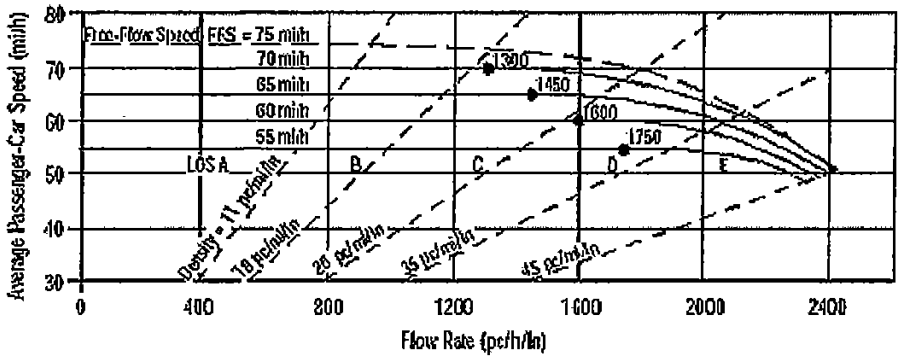
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2000 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	6
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.909

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	797	pc/h/ln
S	70.0	mi/h
D = v_p / S	11.4	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

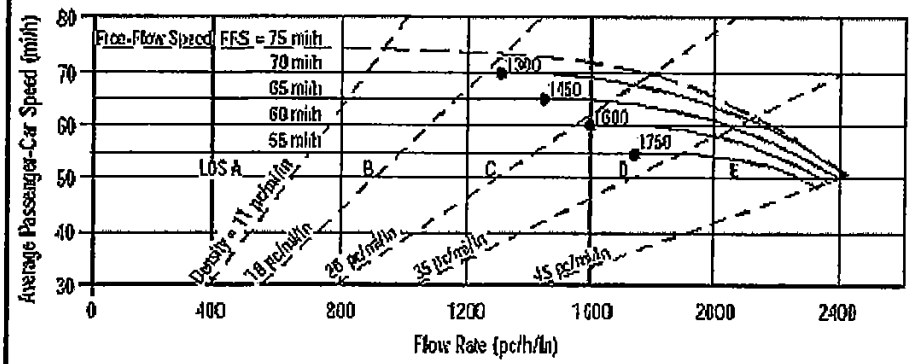
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2343 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	6
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.909

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	934	pc/h/ln
S	70.0	mi/h
D = v_p / S	13.3	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

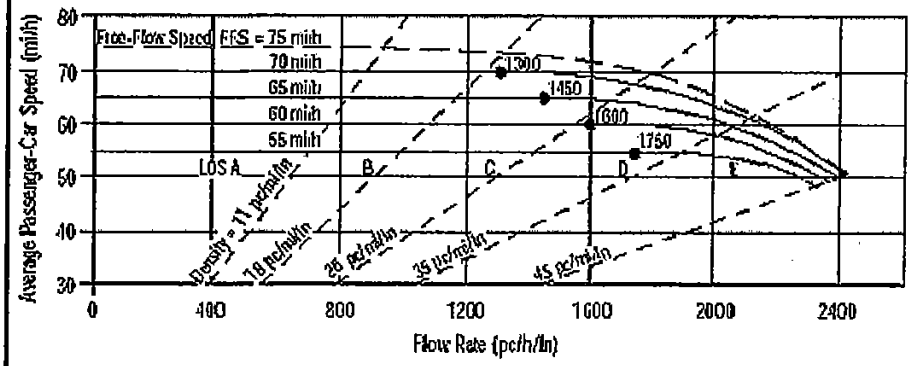
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2581 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1043	pc/h/ln
S	70.0	mi/h
D = v_p / S	14.9	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

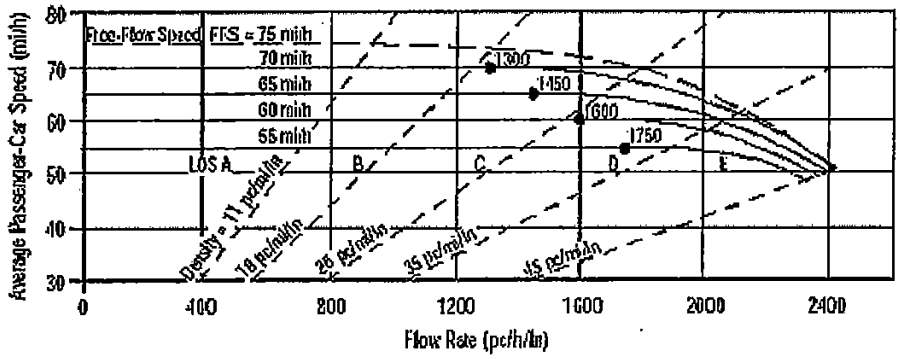
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2866 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1158	pc/h/ln
S	70.0	mi/h
D = v_p / S	16.5	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

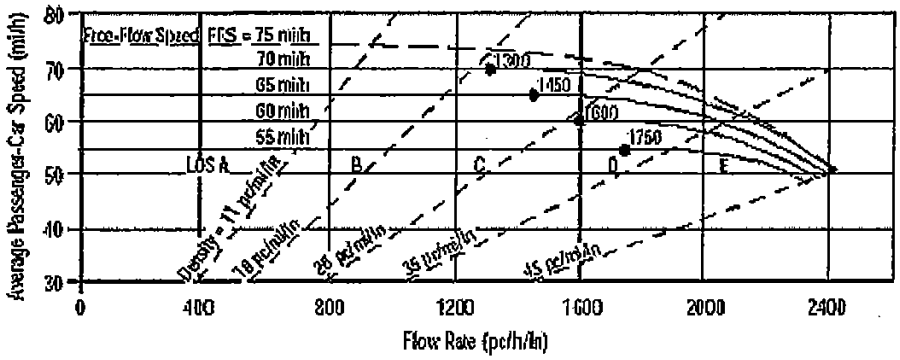
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	1964 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	793	pc/h/ln
S	70.0	mi/h
D = v_p / S	11.3	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

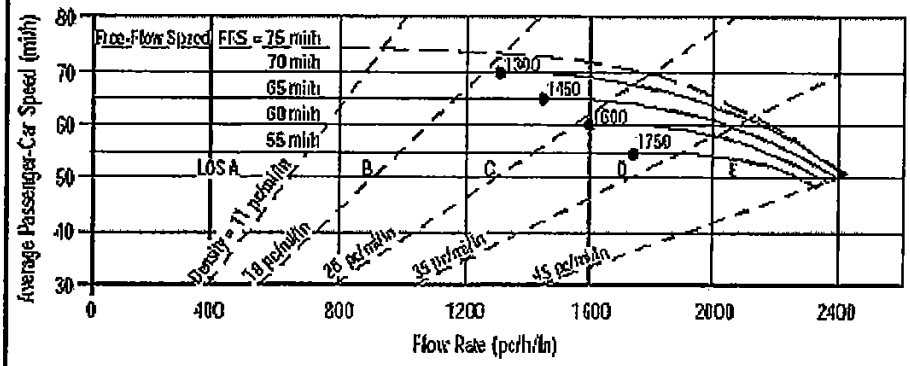
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2163 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	874	pc/h/ln
S	70.0	mi/h
D = v_p / S	12.5	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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FREEWAY RAMP JUNCTIONS

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp
■ Yes ■ On
■ No ■ Off
L_{up} = ft
Vu = veh/h

Terrain
S_{FF} = 55.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp
■ Yes ■ On
■ No ■ Off
L_{down} = ft
VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1750	0.92	Rolling	6	1	0.909	1.00	2092
Ramp	593	0.92	Rolling	5	1	0.922	1.00	699
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 0.591 using Equation (Exhibit 25-5)

V_{12}= 1237 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2791	6750	No
V_{R12}	1936	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 17.1 (pc/ mi /ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.313 (Exibit 25-19)

S_R= 50.9 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S= 51.8 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{Ff}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = (pc/ mi /ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp	Terrain	Downstream Adj Ramp
■ Yes ■ On		■ Yes ■ On
■ No ■ Off		■ No ■ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 55.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2000	0.92	Rolling	6	1	0.909	1.00	2391
Ramp	250	0.92	Rolling	5	1	0.922	1.00	295
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.687 using Equation (Exhibit 25-11)

V_{12} = 1734 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	2391	6750	No
V_{12}	1734	4400:All	No
$V_{FO} = V_F - V_R$	2096	6750	No
V_R	295	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = 14.7 (pc/ mi /ln)

LOS= B (Exhibit 25-4)

Speed Estimation

D_s = 0.455 (Exhibit 25-19)

S_R= 49.1 mph (Exhibit 25-19)

S_0= 60.3 mph (Exhibit 25-19)

S = 51.7 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing + Project

Project Description: Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp	Terrain	Downstream Adj Ramp
■ Yes ■ On		■ Yes ■ On
■ No ■ Off		■ No ■ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 55.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1284	0.92	Rolling	11	1	0.851	1.00	1640
Ramp	345	0.92	Rolling	5	1	0.922	1.00	407
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 0.591 using Equation (Exhibit 25-5)

V_{12}= 970 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2047	6750	No
V_{R12}	1377	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 12.9 (pc/ mi /ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.301 (Exibit 25-19)

S_R= 51.1 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S= 52.1 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = (pc/ mi /ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	AM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp	Terrain	Downstream Adj Ramp
■ Yes ■ On		■ Yes ■ On
■ No ■ Off		■ No ■ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 55.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1506	0.92	Rolling	11	1	0.851	1.00	1923
Ramp	222	0.92	Rolling	5	1	0.922	1.00	262
UpStream								
DownStream								

Merge Areas	Diverge Areas
Estimation of v_{12}	**Estimation of v_{12}**
$V_{12} = V_F (P_{FM})$	$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-2 or 25-3)	L_{EQ} = (Equation 25-8 or 25-9)
P_{FM}= using Equation (Exhibit 25-5)	P_{FD} = 0.700 using Equation (Exhibit 25-11)
V_{12}= pc/h	V_{12} = 1424 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	1923	6750	No
V_{12}	1424	4400:All	No
$V_{FO} = V_F - V_R$	1661	6750	No
V_R	262	2000	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 12.0 (pc/ mi /ln)

LOS= B (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Speed Estimation

D_s = 0.452 (Exhibit 25-19)

S_R= 49.1 mph (Exhibit 25-19)

S_0= 60.3 mph (Exhibit 25-19)

S = 51.6 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp	Terrain	Downstream Adj Ramp
■ Yes ■ On		■ Yes ■ On
■ No ■ Off		■ No ■ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 55.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1715	0.92	Rolling	7	1	0.897	1.00	2079
Ramp	448	0.92	Rolling	5	1	0.922	1.00	528
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 0.591 using Equation (Exhibit 25-5)

V_{12}= 1230 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	2607	6750	No
V_{R12}	1758	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 15.8 (pc/ mi /ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.309 (Exibit 25-19)

S_R= 51.0 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S= 51.9 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/ mi /ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp	Terrain	Downstream Adj Ramp
■ Yes ■ On		■ Yes ■ On
■ No ■ Off		■ No ■ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 55.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D,V_R,V_f)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	1964	0.92	Rolling	7	1	0.897	1.00	2380
Ramp	249	0.92	Rolling	5	1	0.922	1.00	294
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.687 using Equation (Exhibit 25-11)

V_{12} = 1727 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	2380	6750	No
V_{12}	1727	4400:All	No
$V_{FO} = V_F - V_R$	2086	6750	No
V_R	294	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 14.6 (pc/ mi /ln)

LOS= B (Exhibit 25-4)

Speed Estimation

D_s = 0.454 (Exhibit 25-19)

S_R= 49.1 mph (Exhibit 25-19)

S_0= 60.3 mph (Exhibit 25-19)

S = 51.7 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{up} = ft

Vu = veh/h

Terrain

S_{FF} = 55.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{down} = ft

VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2192	0.92	Rolling	7	1	0.897	1.00	2657
Ramp	389	0.92	Rolling	5	1	0.922	1.00	459
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 0.591 using Equation (Exhibit 25-5)

V_{12}= 1572 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3116	6750	No
V_{R12}	2031	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 18.0 (pc/ mi /ln)

LOS = B (Exhibit 25-4)

Speed Estimation

M_S = 0.316 (Exibit 25-19)

S_R= 50.9 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S= 51.6 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = (pc/ mi /ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Existing + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp	Terrain	Downstream Adj Ramp
■ Yes ■ On		■ Yes ■ On
■ No ■ Off		■ No ■ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 55.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2866	0.92	Rolling	7	1	0.897	1.00	3473
Ramp	674	0.92	Rolling	5	1	0.922	1.00	795
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.637 using Equation (Exhibit 25-11)

V_{12} = 2500 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	3473	6750	No
V_{12}	2500	4400:All	No
$V_{FO} = V_F - V_R$	2678	6750	No
V_R	795	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 21.3 (pc/ mi /ln)

LOS= C (Exhibit 25-4)

Speed Estimation

D_s = 0.500 (Exhibit 25-19)

S_R= 48.5 mph (Exhibit 25-19)

S_0= 60.3 mph (Exhibit 25-19)

S = 51.3 mph (Exhibit 25-15)

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APPENDIX C

CUMULATIVE NO PROJECT CONDITIONS
LEVEL OF SERVICE CALCULATION WORKSHEETS

STUDY INTERSECTIONS

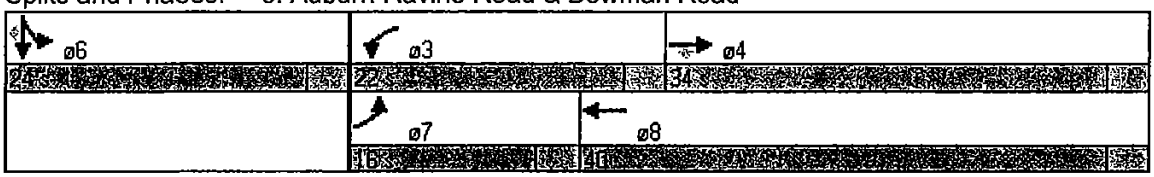


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		300	50		75	0		0	200		200
Storage Lanes	1		1	1		0	0		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50					50	50	50
Trailing Detector (ft)	0	0	0	0	0					0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97	0.99	0.98					0.99		0.98
Frt			0.850		0.919							0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3196	0	0	0	0	1770	1863	1583
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1764	1863	1532	1757	3196	0	0	0	0	1747	1863	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			261		479							71
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		500			130			500			500	
Travel Time (s)		13.6			3.5			13.6			13.6	
Volume (vph)	125	350	240	315	415	485	0	0	0	295	155	65
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	380	261	342	451	527	0	0	0	321	168	71
Lane Group Flow (vph)	136	380	261	342	978	0	0	0	0	321	168	71
Turn Type	Prot		Perm	Prot						Split		Perm
Protected Phases	7	4		3	8					6	6	
Permitted Phases			4									6
Total Split (s)	16.0	34.0	34.0	22.0	40.0	0.0	0.0	0.0	0.0	24.0	24.0	24.0
Act Effct Green (s)	9.6	33.6	33.6	17.2	43.1					17.2	17.2	17.2
Actuated g/C Ratio	0.12	0.42	0.42	0.22	0.54					0.22	0.22	0.22
v/c Ratio	0.64	0.49	0.33	0.90	0.50					0.84	0.42	0.18
Uniform Delay, d1	34.8	16.9	0.0	30.5	5.5					30.1	27.1	0.0
Delay	33.1	18.6	2.6	39.4	7.1					32.3	26.5	6.7
LOS	C	B	A	D	A					C	C	A
Approach Delay		15.8			15.5						27.3	
Approach LOS		B			B						C	
Queue Length 50th (ft)	65	141	0	111	93					151	71	0
Queue Length 95th (ft)	119	230	45	#283	259					#260	124	30
Internal Link Dist (ft)		420			50			420			420	
50th Up Block Time (%)				67%	9%							
95th Up Block Time (%)				80%	11%							
Turn Bay Length (ft)	200		300	50						200		200
50th Bay Block Time %				67%	9%							
95th Bay Block Time %		15%		80%	11%					22%		
Queuing Penalty (veh)		10		608	133					26		

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 74 (93%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 18.0 Intersection LOS: B
Intersection Capacity Utilization 66.8% ICU Level of Service B
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Auburn Ravine Road & Bowman Road



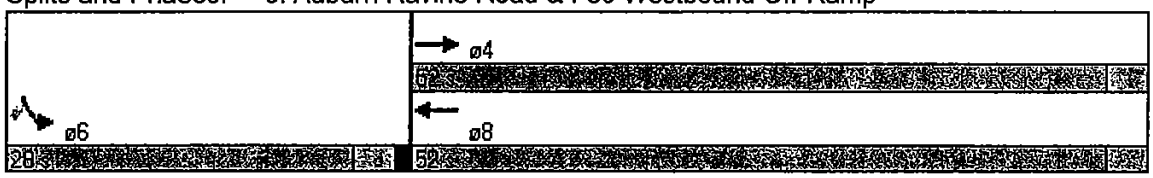


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑↑		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	200	200
Storage Lanes	0			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)		50	50		50	50
Trailing Detector (ft)		0	0		0	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor					0.99	0.98
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	5085	0	1770	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	5085	0	1747	1553
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25	25		25	
Link Distance (ft)		130	360		500	
Travel Time (s)		3.5	9.8		13.6	
Volume (vph)	0	645	1015	0	245	200
Confl. Peds. (#/hr)	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	701	1103	0	266	217
Lane Group Flow (vph)	0	701	1103	0	266	217
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Total Split (s)	0.0	52.0	52.0	0.0	28.0	28.0
Act Effct Green (s)		55.0	55.0		17.0	17.0
Actuated g/C Ratio		0.69	0.69		0.21	0.21
v/c Ratio		0.55	0.32		0.71	0.66
Uniform Delay, d1		6.2	5.0		29.2	28.8
Delay		9.2	7.1		28.3	27.9
LOS		A	A		C	C
Approach Delay		9.2	7.1			
Approach LOS		A	A			
Queue Length 50th (ft)		187	80		125	101
Queue Length 95th (ft)		239	m105		181	153
Internal Link Dist (ft)		50	280		420	
50th Up Block Time (%)		22%				
95th Up Block Time (%)		31%				
Turn Bay Length (ft)					200	200
50th Bay Block Time %						
95th Bay Block Time %					1%	
Queuing Penalty (veh)		185				

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 74 (93%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 12.2 Intersection LOS: B
Intersection Capacity Utilization 58.3% ICU Level of Service A
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Auburn Ravine Road & I-80 Westbound Off-Ramp



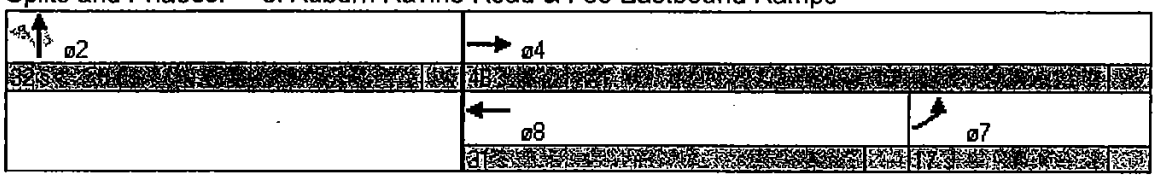


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		225	0		75	200		200	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50			50		50	50	50			
Trailing Detector (ft)	0	0			0		0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99			0.99	0.97			
Frt					0.949				0.850			
Flt Protected	0.950							0.954				
Satd. Flow (prot)	1770	1863	0	0	3322	0	0	1777	1583	0	0	0
Flt Permitted	0.950							0.954				
Satd. Flow (perm)	1765	1863	0	0	3322	0	0	1764	1532	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					126							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		360			210			500			500	
Travel Time (s)		9.8			5.7			13.6			13.6	
Volume (vph)	250	640	0	0	655	340	360	10	530	0	0	0
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	272	696	0	0	712	370	391	11	576	0	0	0
Lane Group Flow (vph)	272	696	0	0	1082	0	0	402	576	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Total Split (s)	17.0	48.0	0.0	0.0	31.0	0.0	32.0	32.0	32.0	0.0	0.0	0.0
Act Effct Green (s)	13.0	44.0			27.0			28.0	28.0			
Actuated g/C Ratio	0.16	0.55			0.34			0.35	0.35			
v/c Ratio	0.94	0.68			0.90			0.65	1.07			
Uniform Delay, d1	33.1	12.9			22.1			21.9	26.0			
Delay	65.1	12.5			12.3			22.6	79.4			
LOS	E	B			B			C	E			
Approach Delay		27.3			12.3			56.0				
Approach LOS		C			B			E				
Queue Length 50th (ft)	132	204			109			166	~325			
Queue Length 95th (ft)	#279	291			m#356			263	#516			
Internal Link Dist (ft)		280			130			420			420	
50th Up Block Time (%)		3%			5%							
95th Up Block Time (%)	7%	17%			14%				25%			
Turn Bay Length (ft)	75								200			
50th Bay Block Time %	45%	38%							30%			
95th Bay Block Time %	79%	41%						21%	52%			
Queuing Penalty (veh)	440	166			102			61	164			

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 44 (55%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 31.2 Intersection LOS: C
Intersection Capacity Utilization 85.7% ICU Level of Service D
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Auburn Ravine Road & I-80 Eastbound Ramps



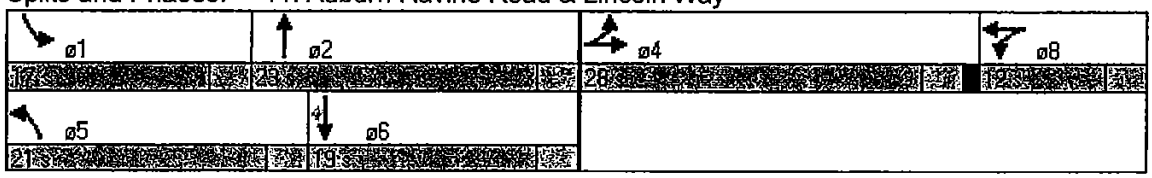


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		125	125		150	175		250	175		175
Storage Lanes	2		1	1		0	2		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95	0.95	0.97	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.99			0.99	1.00		0.99	0.99		0.99		0.98
Frt			0.850		0.965			0.944				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	3400	0	3433	3301	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3407	1863	1583	1758	3400	0	3401	3301	0	1760	1863	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			190		39			143				277
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		210			500			500			500	
Travel Time (s)		5.7			13.6			13.6			13.6	
Volume (vph)	420	440	310	55	250	75	490	345	205	180	195	255
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	457	478	337	60	272	82	533	375	223	196	212	277
Lane Group Flow (vph)	457	478	337	60	354	0	533	598	0	196	212	277
Turn Type	Split		NA	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												6
Total Split (s)	28.0	28.0	0.0	12.0	12.0	0.0	21.0	23.0	0.0	17.0	19.0	19.0
Act Effct Green (s)	28.4	28.4	0.0	8.0	8.0		15.3	16.0		11.6	12.4	12.4
Actuated g/C Ratio	0.36	0.36	0.00	0.10	0.10		0.19	0.20		0.15	0.16	0.16
v/c Ratio	0.37	0.72	1.77	0.34	0.94		0.81	0.77		0.76	0.74	0.58
Uniform Delay, d1	19.2	22.4	0.0	33.5	31.8		31.1	22.7		32.9	32.2	0.0
Delay	23.9	28.7	242.6	34.2	58.7		31.1	22.5		36.5	31.9	4.2
LOS	C	C	F	C	E		C	C		D	C	A
Approach Delay		83.6			55.1			26.5			22.0	
Approach LOS		F			E			C			C	
Queue Length 50th (ft)	100	215	~230	29	83		130	113		93	101	0
Queue Length 95th (ft)	m122	m258	m#307	65	#168		182	164		#181	168	62
Internal Link Dist (ft)		130			420			420			420	
50th Up Block Time (%)		38%	67%									
95th Up Block Time (%)		43%	83%									
Turn Bay Length (ft)	125		125	125			175			175		175
50th Bay Block Time %		39%	69%									
95th Bay Block Time %		44%	84%		29%		8%	1%		11%	4%	
Queuing Penalty (veh)		383	967		8		12			25	4	

Intersection Summary

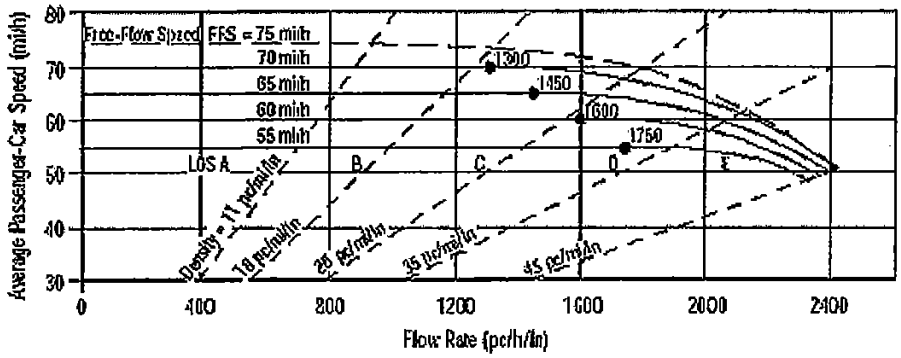
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 4:EBTL, Start of Yellow, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.77
Intersection Signal Delay: 49.8 Intersection LOS: D
Intersection Capacity Utilization 70.4% ICU Level of Service C
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Auburn Ravine Road & Lincoln Way



I-80 FREEWAY MAINLINE

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative No Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	3965 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1602	pc/h/ln
S	69.4	mi/h
D = v_p / S	23.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

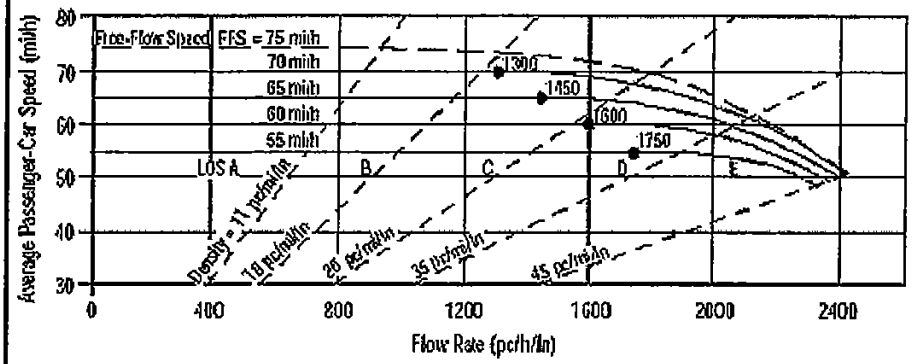
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative No Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	4265 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1723	pc/h/ln
S	68.6	mi/h
D = v_p / S	25.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

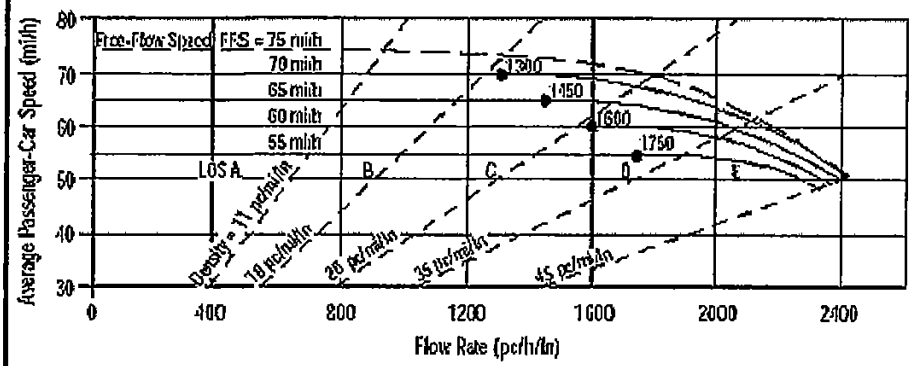
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative No Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2690 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1087	pc/h/ln
S	70.0	mi/h
D = v_p / S	15.5	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

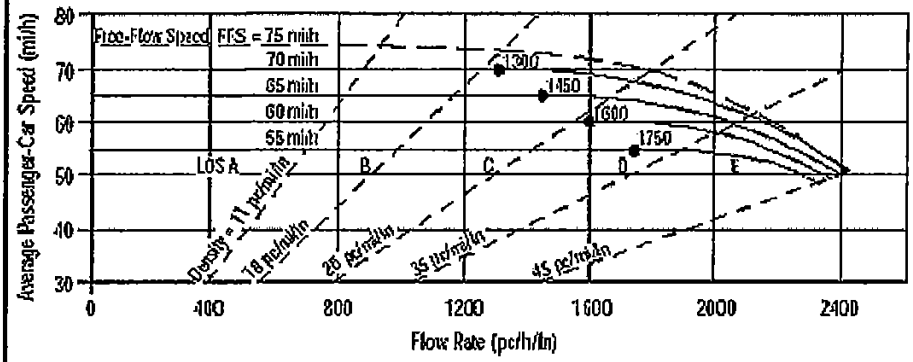
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative No Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2955 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1194	pc/h/ln
S	70.0	mi/h
D = v_p / S	17.1	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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FREEWAY RAMP JUNCTIONS

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative No Project

Project Description: Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp	Terrain	Downstream Adj Ramp
■ Yes ■ On		■ Yes ■ On
■ No ■ Off		■ No ■ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 55.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2245	0.92	Rolling	7	1	0.897	1.00	2721
Ramp	710	0.92	Rolling	5	1	0.922	1.00	837
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 0.591 using Equation (Exhibit 25-5)

V_{12}= 1609 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3558	6750	No
V_{R12}	2446	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, V_{12} - 0.00627\, L_A$

D_R = 21.0 (pc/ mi /ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.331 (Exibit 25-19)

S_R= 50.7 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S= 51.3 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\, V_{12} - 0.0009\, L_D$

D_R = (pc/ mi /ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative No Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{up} = ft

Vu = veh/h

Terrain

S_{FF} = 55.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{down} = ft

VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2690	0.92	Rolling	7	1	0.897	1.00	3260
Ramp	445	0.92	Rolling	5	1	0.922	1.00	525
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.654 using Equation (Exhibit 25-11)

V_{12} = 2315 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	3260	6750	No
V_{12}	2315	4400:All	No
$V_{FO} = V_F - V_R$	2735	6750	No
V_R	525	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 19.7 (pc/ mi /ln)

LOS= B (Exhibit 25-4)

Speed Estimation

D_s = 0.475 (Exhibit 25-19)

S_R= 48.8 mph (Exhibit 25-19)

S_0= 60.3 mph (Exhibit 25-19)

S = 51.7 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative No Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp	Terrain	Downstream Adj Ramp
■ Yes ■ On		■ Yes ■ On
■ No ■ Off		■ No ■ Off
L_{up} = ft		L_{down} = ft
Vu = veh/h	S_{FF} = 55.0 mph S_{FR} = 35.0 mph Sketch (show lanes, L_A, L_D, V_R, V_f)	VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	3365	0.92	Rolling	7	1	0.897	1.00	4078
Ramp	600	0.92	Rolling	5	1	0.922	1.00	708
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= 0.591 using Equation (Exhibit 25-5)

V_{12}= 2412 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4786	6750	No
V_{R12}	3120	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 26.4 (pc/ mi /ln)

LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.374 (Exibit 25-19)

S_R= 50.1 mph (Exhibit 25-19)

S_0= N/A mph (Exhibit 25-19)

S= 50.4 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-11)

V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = (pc/ mi /ln)

LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative No Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp: ■ Yes ■ On ■ No ■ Off
L_{up} = ft
Vu = veh/h

Terrain

S_{FF} = 55.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp: ■ Yes ■ On ■ No ■ Off
L_{down} = ft
VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	4265	0.92	Rolling	7	1	0.897	1.00	5169
Ramp	900	0.92	Rolling	5	1	0.922	1.00	1061
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)
P_{FM}= using Equation (Exhibit 25-5)
V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)
LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)
S_R= mph (Exhibit 25-19)
S_0= mph (Exhibit 25-19)
S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)
P_{FD} = 0.582 using Equation (Exhibit 25-11)
V_{12} = 3452 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	5169	6750	No
V_{12}	3452	4400:All	No
$V_{FO} = V_F - V_R$	4108	6750	No
V_R	1061	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 29.4 (pc/ mi /ln)
LOS= D (Exhibit 25-4)

Speed Estimation

D_s = 0.523 (Exhibit 25-19)
S_R= 48.2 mph (Exhibit 25-19)
S_0= 57.5 mph (Exhibit 25-19)
S = 50.9 mph (Exhibit 25-15)

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APPENDIX D

CUMULATIVE + PROJECT CONDITIONS
LEVEL OF SERVICE CALCULATION WORKSHEETS

STUDY INTERSECTIONS

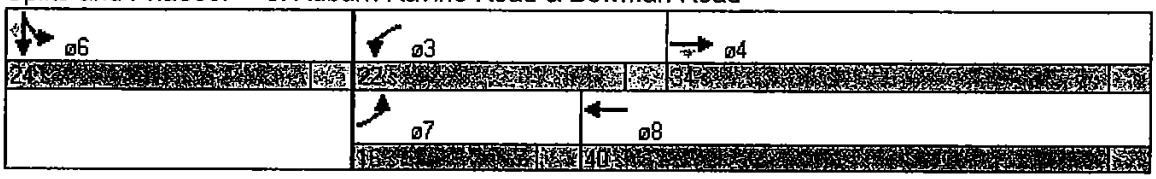


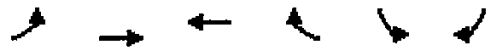
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		300	50		75	0		0	200		200
Storage Lanes	1		1	1		0	0		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50					50	50	50
Trailing Detector (ft)	0	0	0	0	0					0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97	0.99	0.98					0.99		0.98
Frt			0.850		0.919							0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1770	1863	1583	1770	3196	0	0	0	0	1770	1863	1583
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	1764	1863	1532	1757	3196	0	0	0	0	1747	1863	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			261		480							71
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		500			130			500			500	
Travel Time (s)		13.6			3.5			13.6			13.6	
Volume (vph)	125	354	240	318	420	491	0	0	0	300	155	65
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	385	261	346	457	534	0	0	0	326	168	71
Lane Group Flow (vph)	136	385	261	346	991	0	0	0	0	326	168	71
Turn Type	Prot		Perm	Prot						Split		Perm
Protected Phases	7	4		3	8					6	6	
Permitted Phases			4									6
Total Split (s)	16.0	34.0	34.0	22.0	40.0	0.0	0.0	0.0	0.0	24.0	24.0	24.0
Act Effct Green (s)	9.6	33.1	33.1	17.3	42.7					17.6	17.6	17.6
Actuated g/C Ratio	0.12	0.41	0.41	0.22	0.53					0.22	0.22	0.22
v/c Ratio	0.64	0.50	0.33	0.90	0.51					0.84	0.41	0.18
Uniform Delay, d1	34.8	17.3	0.0	30.5	5.7					29.8	26.7	0.0
Delay	33.1	19.0	2.6	40.9	7.2					32.6	26.2	6.7
LOS	C	B	A	D	A					C	C	A
Approach Delay		16.0			15.9						27.4	
Approach LOS		B			B						C	
Queue Length 50th (ft)	65	148	0	138	95					150	69	0
Queue Length 95th (ft)	119	234	45	#290	267					#266	124	30
Internal Link Dist (ft)		420			50			420			420	
50th Up Block Time (%)				67%	9%							
95th Up Block Time (%)				80%	11%							
Turn Bay Length (ft)	200		300	50						200		200
50th Bay Block Time %				67%	9%							
95th Bay Block Time %		16%		80%	11%					24%		
Queuing Penalty (veh)		10		616	134					28		

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 74 (93%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 18.4 Intersection LOS: B
Intersection Capacity Utilization 67.5% ICU Level of Service B
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Auburn Ravine Road & Bowman Road



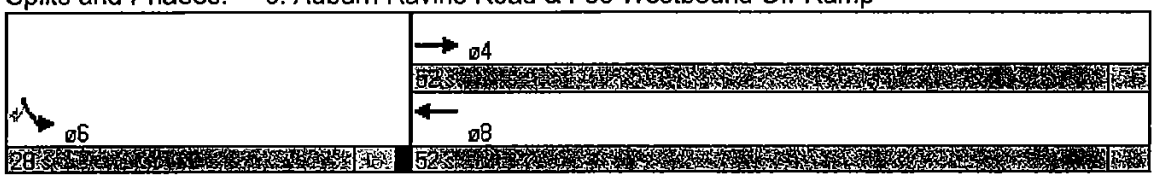


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑↑		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			0	200	200
Storage Lanes	0			0	1	1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)		50	50		50	50
Trailing Detector (ft)		0	0		0	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	1.00
Ped Bike Factor					0.99	0.98
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	1863	5085	0	1770	1583
Flt Permitted					0.950	
Satd. Flow (perm)	0	1863	5085	0	1747	1553
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25	25		25	
Link Distance (ft)		130	360		500	
Travel Time (s)		3.5	9.8		13.6	
Volume (vph)	0	654	1029	0	250	200
Confl. Peds. (#/hr)	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	711	1118	0	272	217
Lane Group Flow (vph)	0	711	1118	0	272	217
Turn Type						Perm
Protected Phases		4	8		6	
Permitted Phases						6
Total Split (s)	0.0	52.0	52.0	0.0	28.0	28.0
Act Effct Green (s)		54.8	54.8		17.2	17.2
Actuated g/C Ratio		0.69	0.69		0.22	0.22
v/c Ratio		0.56	0.32		0.72	0.65
Uniform Delay, d1		6.4	5.1		29.1	28.7
Delay		9.4	7.1		28.3	27.7
LOS		A	A		C	C
Approach Delay		9.4	7.1			
Approach LOS		A	A			
Queue Length 50th (ft)		190	80		128	100
Queue Length 95th (ft)		242	m104		185	152
Internal Link Dist (ft)		50	280		420	
50th Up Block Time (%)		22%				
95th Up Block Time (%)		31%				
Turn Bay Length (ft)					200	200
50th Bay Block Time %						
95th Bay Block Time %					2%	
Queuing Penalty (veh)		191				

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 74 (93%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 12.2 Intersection LOS: B
Intersection Capacity Utilization 59.1% ICU Level of Service A
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Auburn Ravine Road & I-80 Westbound Off-Ramp



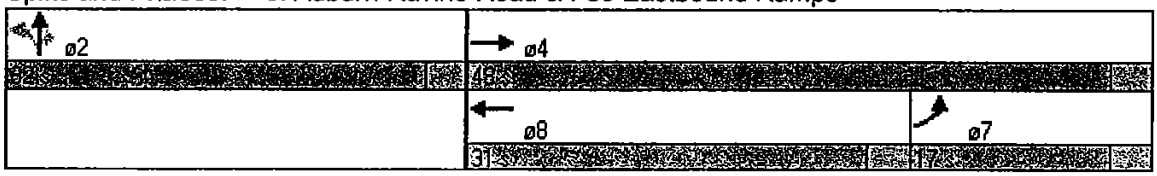


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		225	0		75	200		200	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50			50		50	50	50			
Trailing Detector (ft)	0	0			0		0	0	0			
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99			0.99	0.97			
Frt					0.949				0.850			
Flt Protected	0.950							0.954				
Satd. Flow (prot)	1770	1863	0	0	3322	0	0	1777	1583	0	0	0
Flt Permitted	0.950							0.954				
Satd. Flow (perm)	1765	1863	0	0	3322	0	0	1764	1532	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					125							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		360			210			500			500	
Travel Time (s)		9.8			5.7			13.6			13.6	
Volume (vph)	250	654	0	0	669	346	360	10	541	0	0	0
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	272	711	0	0	727	376	391	11	588	0	0	0
Lane Group Flow (vph)	272	711	0	0	1103	0	0	402	588	0	0	0
Turn Type	Prot						Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases							2		2			
Total Split (s)	17.0	48.0	0.0	0.0	31.0	0.0	32.0	32.0	32.0	0.0	0.0	0.0
Act Effct Green (s)	13.0	44.0			27.0			28.0	28.0			
Actuated g/C Ratio	0.16	0.55			0.34			0.35	0.35			
v/c Ratio	0.94	0.69			0.92			0.65	1.10			
Uniform Delay, d1	33.1	13.1			22.4			21.9	26.0			
Delay	65.6	13.1			13.1			22.6	85.8			
LOS	E	B			B			C	F			
Approach Delay		27.6			13.1			60.1				
Approach LOS		C			B			E				
Queue Length 50th (ft)	137	221			116			166	~338			
Queue Length 95th (ft)	#281	297			m#354			263	#530			
Internal Link Dist (ft)		280			130			420			420	
50th Up Block Time (%)		5%			5%							
95th Up Block Time (%)	10%	18%			14%				27%			
Turn Bay Length (ft)	75								200			
50th Bay Block Time %	46%	42%							32%			
95th Bay Block Time %	79%	41%						21%	53%			
Queuing Penalty (veh)	459	194			109			62	171			

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 44 (55%), Referenced to phase 4:EBT and 8:WBT, Start of Yellow
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 32.9 Intersection LOS: C
Intersection Capacity Utilization 86.3% ICU Level of Service D
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Auburn Ravine Road & I-80 Eastbound Ramps



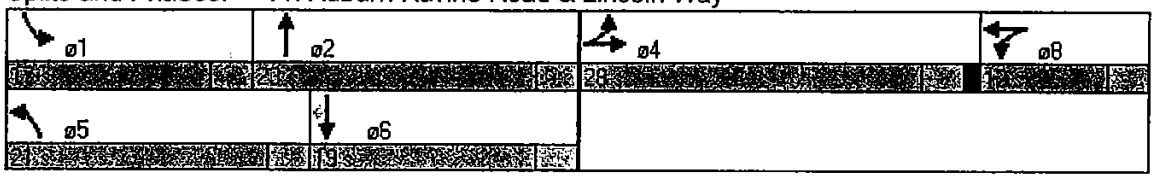


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		125	125		150	175		250	175		175
Storage Lanes	2		1	1		0	2		0	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	50
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95	0.95	0.97	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.99			0.99	1.00		0.99	0.99		0.99		0.98
Frt			0.850		0.965			0.942				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	3400	0	3433	3292	0	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3408	1863	1583	1759	3400	0	3401	3292	0	1760	1863	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			180		39			162				277
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		210			500			500			500	
Travel Time (s)		5.7			13.6			13.6			13.6	
Volume (vph)	420	465	310	59	270	81	490	345	217	189	195	255
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	457	505	337	64	293	88	533	375	236	205	212	277
Lane Group Flow (vph)	457	505	337	64	381	0	533	611	0	205	212	277
Turn Type	Split		NA	Split			Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												6
Total Split (s)	28.0	28.0	0.0	12.0	12.0	0.0	21.0	23.0	0.0	17.0	19.0	19.0
Act Effct Green (s)	28.4	28.4	0.0	8.0	8.0		15.3	15.8		11.8	12.4	12.4
Actuated g/C Ratio	0.36	0.36	0.00	0.10	0.10		0.19	0.20		0.15	0.16	0.16
v/c Ratio	0.37	0.76	1.87	0.36	1.02		0.81	0.78		0.79	0.74	0.58
Uniform Delay, d1	19.2	22.8	0.0	33.6	32.2		31.1	22.1		32.9	32.2	0.0
Delay	23.8	30.5	257.8	34.3	75.7		31.1	21.8		38.1	31.9	4.2
LOS	C	C	F	C	E		C	C		D	C	A
Approach Delay		87.1			69.7			26.1			22.7	
Approach LOS		F			E			C			C	
Queue Length 50th (ft)	102	232	~238	30	~94		130	112		98	101	0
Queue Length 95th (ft)	m121	m#314	m#311	68	#185		182	163		#194	168	62
Internal Link Dist (ft)		130			420			420			420	
50th Up Block Time (%)		40%	70%									
95th Up Block Time (%)		48%	84%									
Turn Bay Length (ft)	125		125	125			175			175		175
50th Bay Block Time %		40%	72%									
95th Bay Block Time %		49%	84%		36%		8%	1%		17%	4%	
Queuing Penalty (veh)		424	1008		11		12			40	4	

Intersection Summary

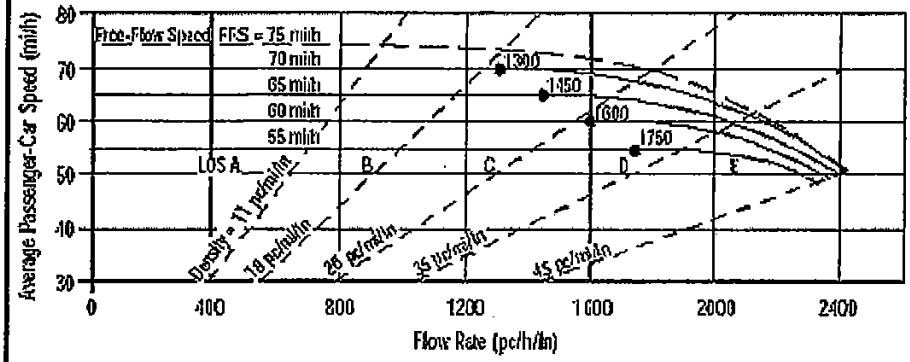
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 4:EBTL, Start of Yellow, Master Intersection
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.87
Intersection Signal Delay: 53.0 Intersection LOS: D
Intersection Capacity Utilization 73.0% ICU Level of Service C
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Auburn Ravine Road & Lincoln Way



I-80 FREEWAY MAINLINE

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	3971 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1604	pc/h/ln
S	69.4	mi/h
D = v_p / S	23.1	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

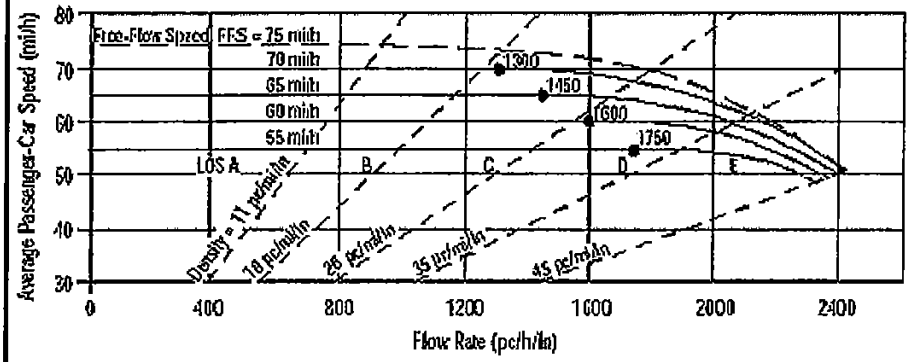
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	4276 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1727	pc/h/ln
S	68.6	mi/h
D = v_p / S	25.2	pc/mi/ln
LOS	C	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

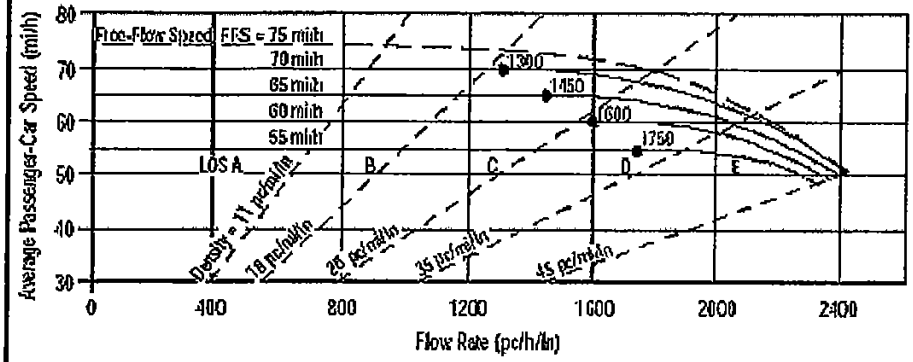
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	North of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2695 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1089	pc/h/ln
S	70.0	mi/h
D = v_p / S	15.6	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
S		mi/h
D = v_p / S		pc/mi/ln
Required Number of Lanes, N		

Glossary

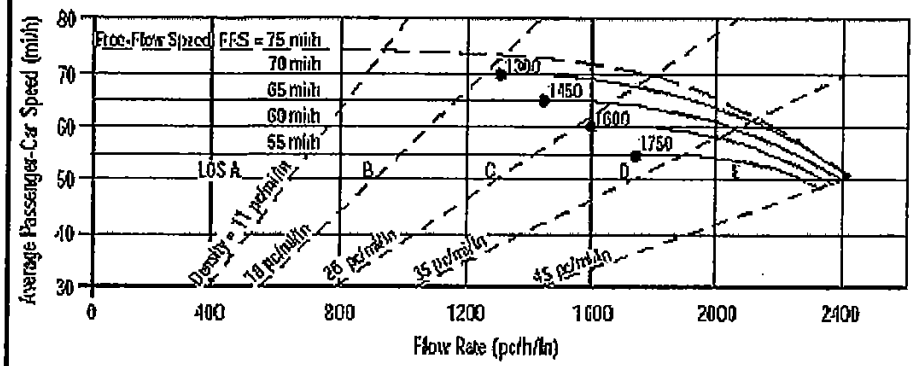
N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		Site Information	
Analyst	NKL	Highway/Direction of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	From/To	South of Auburn Ravine Rd.
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	2958 veh/h	Peak-Hour Factor, PHF	0.92
AADT	veh/day	%Trucks and Buses, P_T	7
Peak-Hr Prop. of AADT, K		%RVs, P_R	1
Peak-Hr Direction Prop, D		General Terrain:	Rolling
DDHV = AADT x K x D	veh/h	Grade % Length	mi
Driver type adjustment	1.00	Up/Down %	

Calculate Flow Adjustments

f_p	1.00	E_R	2.0
E_T	2.5	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	0.897

Speed Inputs

Lane Width	12.0	ft
Rt-Shoulder Lat. Clearance	6.0	ft
Interchange Density	0.50	I/mi
Number of Lanes, N	3	
FFS (measured)	70.0	mi/h
Base free-flow Speed, BFFS		mi/h

Calc Speed Adj and FFS

f_{LW}		mi/h
f_{LC}		mi/h
f_{ID}		mi/h
f_N		mi/h
FFS	70.0	mi/h

LOS and Performance Measures

Operational (LOS)

v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	1195	pc/h/ln
S	70.0	mi/h
D = v_p / S	17.1	pc/mi/ln
LOS	B	

Design (N)

Design (N)

Design LOS	
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	pc/h
S	mi/h
D = v_p / S	pc/mi/ln
Required Number of Lanes, N	

Glossary

N - Number of lanes	S - Speed
V - Hourly volume	D - Density
v_p - Flow rate	FFS - Free-flow speed
LOS - Level of service	BFFS - Base free-flow speed
DDHV - Directional design hour volume	

Factor Location

E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
f_p - Page 23-12	f_N - Exhibit 23-6
LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7

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FREEWAY RAMP JUNCTIONS

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp
■ Yes ■ On
■ No ■ Off
L_{up} = ft
Vu = veh/h

Terrain

S_{FF} = 55.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp
■ Yes ■ On
■ No ■ Off
L_{down} = ft
VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2245	0.92	Rolling	7	1	0.897	1.00	2721
Ramp	713	0.92	Rolling	5	1	0.922	1.00	841
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)
P_{FM}= 0.591 using Equation (Exhibit 25-5)
V_{12}= 1609 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	3562	6750	No
V_{R12}	2450	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = 21.1 (pc/ mi /ln)
LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.331 (Exibit 25-19)
S_R= 50.7 mph (Exhibit 25-19)
S_0= N/A mph (Exhibit 25-19)
S= 51.3 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)
P_{FD} = using Equation (Exhibit 25-11)
V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = (pc/ mi /ln)
LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)
S_R= mph (Exhibit 25-19)
S_0= mph (Exhibit 25-19)
S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Westbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative + Project

Project Description: Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp: ■ Yes ■ On ■ No ■ Off
L_{up} = ft
Vu = veh/h

Terrain

S_{FF} = 55.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp: ■ Yes ■ On ■ No ■ Off
L_{down} = ft
VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	2695	0.92	Rolling	7	1	0.897	1.00	3266
Ramp	450	0.92	Rolling	5	1	0.922	1.00	531
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)
P_{FM}= using Equation (Exhibit 25-5)
V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)
LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)
S_R= mph (Exhibit 25-19)
S_0= mph (Exhibit 25-19)
S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)
P_{FD} = 0.654 using Equation (Exhibit 25-11)
V_{12} = 2319 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	3266	6750	No
V_{12}	2319	4400:All	No
$V_{FO} = V_F - V_R$	2735	6750	No
V_R	531	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 19.7 (pc/ mi /ln)
LOS= B (Exhibit 25-4)

Speed Estimation

D_s = 0.476 (Exhibit 25-19)
S_R= 48.8 mph (Exhibit 25-19)
S_0= 60.3 mph (Exhibit 25-19)
S = 51.7 mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp
■ Yes ■ On
■ No ■ Off
L_{up} = ft
Vu = veh/h

Terrain
S_{FF} = 55.0 mph S_{FR} = 35.0 mph
Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp
■ Yes ■ On
■ No ■ Off
L_{down} = ft
VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	3365	0.92	Rolling	7	1	0.897	1.00	4078
Ramp	606	0.92	Rolling	5	1	0.922	1.00	715
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$
L_{EQ} = (Equation 25-2 or 25-3)
P_{FM}= 0.591 using Equation (Exhibit 25-5)
V_{12}= 2412 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	4793	6750	No
V_{R12}	3127	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$
D_R = 26.4 (pc/ mi /ln)
LOS = C (Exhibit 25-4)

Speed Estimation

M_S = 0.375 (Exibit 25-19)
S_R= 50.1 mph (Exhibit 25-19)
S_0= N/A mph (Exhibit 25-19)
S= 50.4 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$
L_{EQ} = (Equation 25-8 or 25-9)
P_{FD} = using Equation (Exhibit 25-11)
V_{12} = pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$		See Exhibit 25-14	
V_{12}		4400:All	
$V_{FO} = V_F - V_R$		See Exhibit 25-14	
V_R		See Exhibit 25-3	

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$
D_R = (pc/ mi /ln)
LOS= (Exhibit 25-4)

Speed Estimation

D_s = (Exhibit 25-19)
S_R= mph (Exhibit 25-19)
S_0= mph (Exhibit 25-19)
S = mph (Exhibit 25-15)

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RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information		Site Information	
Analyst	NKL	Freeway/Dir of Travel	I-80 Eastbound
Agency or Company	Martin, Rivett & Olson, Inc.	Junction	Auburn Ravine Rd./Foresthill
Date Performed	11/19/2003	Jurisdiction	Placer County
Analysis Time Period	PM Peak Hour	Analysis Year	Cumulative + Project

Project Description Forest Ranch - Supplemental Traffic Analysis

Inputs

Upstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{up} = ft

Vu = veh/h

Terrain

S_{FF} = 55.0 mph S_{FR} = 35.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp: ■ Yes ■ On ■ No ■ Off

L_{down} = ft

VD = veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	Truck	%Rv	f_{HV}	f_p	v=V/PHF f_{HV} f_p
Freeway	4276	0.92	Rolling	7	1	0.897	1.00	5182
Ramp	911	0.92	Rolling	5	1	0.922	1.00	1074
UpStream								
DownStream								

Merge Areas

Estimation of v_{12}

$V_{12} = V_F (P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM}= using Equation (Exhibit 25-5)

V_{12}= pc/h

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}		See Exhibit 25-7	
V_{R12}		4600:All	

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ V_{12} - 0.00627\ L_A$

D_R = (pc/ mi /ln)

LOS = (Exhibit 25-4)

Speed Estimation

M_S = (Exibit 25-19)

S_R= mph (Exhibit 25-19)

S_0= mph (Exhibit 25-19)

S= mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.581 using Equation (Exhibit 25-11)

V_{12} = 3461 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$V_{FI}=V_F$	5182	6750	No
V_{12}	3461	4400:All	No
$V_{FO} = V_F - V_R$	4108	6750	No
V_R	1074	2000	No

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086\ V_{12} - 0.0009\ L_D$

D_R = 29.5 (pc/ mi /ln)

LOS= D (Exhibit 25-4)

Speed Estimation

D_s = 0.525 (Exhibit 25-19)

S_R= 48.2 mph (Exhibit 25-19)

S_0= 57.5 mph (Exhibit 25-19)

S = 50.9 mph (Exhibit 25-15)

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Appendix J

TABLE A

ACCIDENT DATA SUMMARY FOR FREQUENT ACCIDENT LOCATIONS

Roadway (Total Accident	Location # of Accide	# Injured Occurrenc	Roadway Surface Conditions	Was Driver Impaired?	Type of Collision
Foresthill Road (116)	Drivers Flat 13	6 Injured 1	Dry 75	No.....84	Hit Object 52
	Upper Lake 12	5 Injured 1	Wet..... 25	Yes.....21	Broadside 14
	NF Ponderosa 12	4 Injured 2	Snowy/Icy..... 15	Unknown.....9	Rear end 14
	Todd Valley 11	3 Injured 9		Sleepy or Fatigued.....2	Overturn 11
	Lincoln Way 8	2 Injured 9			Sideswipe..... 11
	Lake Clemente..... 7	1 Injured 38			Other 8
	Old Auburn-Foresthill 5	1 Killed..... 3			Head on..... 6
Todd Valley Rd (5)	Green Leaf 3	4 Injured 1	Dry 4	Yes.....4	Hit Object 4
	Foresthill 1	1 Injured 1	Wet..... 1	No.....1	Other 1
	Mouganberry 1	1 killed..... 1			
Spring Garden (3)	Foresthill 2	1 Injured 2	Dry 3	No.....3	Hit Object 2
	Owl Creek..... 1				Broadside..... 1
Yankee Jim's (3)	Canyon Way 1	1 Injured 2	Dry 2	Yes.....2	Overturned..... 2
	Foresthill 1		Wet..... 1	No.....1	Hit Object 1
	Spring Garden..... 1				
Michigan Bluff (1)	Foresthill 1	1 Injured 1	Dry 1	No.....1	Hit Object 1

TABLE B DAILY TRIP GENERATION RATES FOR FOREST RANCH	
Land Use Quantity	**Source**
Single Family	Circulation element in the Foresthill Community Plan Area Update. These rates included a 20% reduction for the rural characteristic of the Foresthill Community.
Retirement Community	Bickford Ranch EIR with 20% reduction for rural characteristics in the Foresthill Community.
BP	Institute of Transportation Engineers Trip Generation, Sixth Edition. No reduction taken for rural characteristics.
Medical / Dental Office	Institute of Transportation Engineers Trip Generation, Sixth Edition. No reduction taken for rural characteristics.
Golf Course	Institute of Transportation Engineers Trip Generation, Sixth Edition. No reduction taken for rural characteristics, as most of the patrons will be from area players.
Equestrian Center	Traffic Impact Assessment for The Springs Equestrian Center.
Recreational Vehicle Park	Traffic Impact Analysis for Collins Lake Expansion.

Appendix K

Appendix
Acoustic 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, defined as one-tenth of the logarithm of the ratio of the sound pressure squared over the reference pressure squared.
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.
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.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches

Appendix L

Appedix B-1
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2002-066
Desciption: Existing
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	*Roadway Name*	*Segment Description*	*ADT*	*Day %*	*Eve %*	*Night %*	*% Med. Trucks*	*% Heavy Trucks*	*Speed*	*Distance*
1	Foresthill Road	E of Foresthill Bridge	6650	85		15	2.5	1.5	45	100
2	Foresthill Road	W. of Spring Garden	6800	85		15	2.5	1.5	45	100
3	Foresthill Road	E of Happy Pines Dr	4876	85		15	2.5	1.5	45	100
4	Foresthill Road	W of Owl Hill Court	5312	85		15	2.5	1.5	45	100
5	Foresthill Road	W. of Mosquito Ridge	4800	85		15	2.5	1.5	45	100
6	Foresthill Road	W. of Yankee Hill Rd	3950	85		15	2.5	1.5	45	100
7	Foresthill Road	E of Yankee Hill Rd	2000	85		15	2.5	1.5	45	100
8	Foresthill Road	W of Blackhawk Ln	1300	85		15	2.5	1.5	45	100
9	Foresthill Road	W of Michigan Bluff	796	85		15	2.5	1.5	45	100
10	Foresthill Road	E of Michigan Bluff	481	85		15	2.5	1.5	45	100
11	McKeon-Ponderosa	S of Foresthill Rd	1495	85		15	2.5	1.5	45	100
12	Spring Garden Rd	N of Foresthill Rd	624	85		15	2.5	1.5	45	100
13	Happy Pines Dr	S of Foresthill Rd	1293	85		15	2.5	1.5	45	100
14	Todd Valley Rd (W)	S of Foresthill Rd	2663	85		15	2.5	1.5	45	100
15	Todd Valley Rd (E)	S of Foresthill Rd	319	85		15	2.5	1.5	45	100
16	Mosquito Ridge Rd	S of Foresthill Rd	230	85		15	2.5	1.5	45	100
17	Yankee Jim's Rd	N of Race Track St	186	85		15	2.5	1.5	45	100
18	Main St	S of Foresthill Rd	691	85		15	2.5	1.5	45	100
19	Michigan Bluff Rd	S of Foresthill Rd	200	85		15	2.5	1.5	45	100
20	Race Track St	N of Foresthill Rd	901	85		15	2.5	1.5	45	100



Appendix B-2
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2002-066
Desciption: Existing+Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	*Roadway Name*	*Segment Description*	*ADT*	*Day %*	*Eve %*	*Night %*	*% Med. Trucks*	*% Heavy Trucks*	*Speed*	*Distance*
1	Foresthill Road	E of Foresthill Bridge	13200	85		15	2.5	1.5	45	100
2	Foresthill Road	W. of Spring Garden	13500	85		15	2.5	1.5	45	100
3	Foresthill Road	E of Happy Pines Dr	11700	85		15	2.5	1.5	45	100
4	Foresthill Road	W of Owl Hill Court	12100	85		15	2.5	1.5	45	100
5	Foresthill Road	W. of Mosquito Ridge	11500	85		15	2.5	1.5	45	100
6	Foresthill Road	W. of Yankee Hill Rd	10800	85		15	2.5	1.5	45	100
7	Foresthill Road	E of Yankee Hill Rd	6200	85		15	2.5	1.5	45	100
8	Foresthill Road	W of Blackhawk Ln	1550	85		15	2.5	1.5	45	100
9	Foresthill Road	W of Michigan Bluff	1050	85		15	2.5	1.5	45	100
10	Foresthill Road	E of Michigan Bluff	850	85		15	2.5	1.5	45	100
11	McKeon-Ponderosa	S of Foresthill Rd	1500	85		15	2.5	1.5	45	100
12	Spring Garden Rd	N of Foresthill Rd	650	85		15	2.5	1.5	45	100
13	Happy Pines Dr	S of Foresthill Rd	1300	85		15	2.5	1.5	45	100
14	Todd Valley Rd (W)	S of Foresthill Rd	2650	85		15	2.5	1.5	45	100
15	Todd Valley Rd (E)	S of Foresthill Rd	300	85		15	2.5	1.5	45	100
16	Mosquito Ridge Rd	S of Foresthill Rd	250	85		15	2.5	1.5	45	100
17	Yankee Jim's Rd	N of Race Track St	3800	85		15	2.5	1.5	45	100
18	Main St	S of Foresthill Rd	600	85		15	2.5	1.5	45	100
19	Michigan Bluff Rd	S of Foresthill Rd	200	85		15	2.5	1.5	45	100
20	Race Track St	N of Foresthill Rd	1900	85		15	2.5	1.5	45	100



Appendix B-3
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2002-066
Desciption: Cumulative
Ldn/CNEL: Ldn
Hard/Soft: Soft

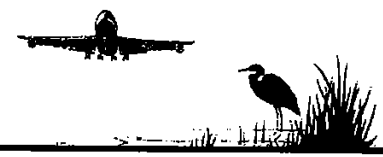
Segment	*Roadway Name*	*Segment Description*	*ADT*	*Day %*	*Eve %*	*Night %*	*% Med. Trucks*	*% Heavy Trucks*	*Speed*	*Distance*
1	Foresthill Road	E of Foresthill Bridge	11400	85		15	2.5	1.5	45	100
2	Foresthill Road	W. of Spring Garden	11700	85		15	2.5	1.5	45	100
3	Foresthill Road	E of Happy Pines Dr	9900	85		15	2.5	1.5	45	100
4	Foresthill Road	W of Owl Hill Court	10200	85		15	2.5	1.5	45	100
5	Foresthill Road	W. of Mosquito Ridge	10800	85		15	2.5	1.5	45	100
6	Foresthill Road	W. of Yankee Hill Rd	9100	85		15	2.5	1.5	45	100
7	Foresthill Road	E of Yankee Hill Rd	6300	85		15	2.5	1.5	45	100
8	Foresthill Road	W of Blackhawk Ln	3050	85		15	2.5	1.5	45	100
9	Foresthill Road	W of Michigan Bluff	1450	85		15	2.5	1.5	45	100
10	Foresthill Road	E of Michigan Bluff	1100	85		15	2.5	1.5	45	100
11	McKeon-Ponderosa	S of Foresthill Rd	1700	85		15	2.5	1.5	45	100
12	Spring Garden Rd	N of Foresthill Rd	1050	85		15	2.5	1.5	45	100
13	Happy Pines Dr	S of Foresthill Rd	1450	85		15	2.5	1.5	45	100
14	Todd Valley Rd (W)	S of Foresthill Rd	3100	85		15	2.5	1.5	45	100
15	Todd Valley Rd (E)	S of Foresthill Rd	500	85		15	2.5	1.5	45	100
16	Mosquito Ridge Rd	S of Foresthill Rd	1600	85		15	2.5	1.5	45	100
17	Yankee Jim's Rd	N of Race Track St	1550	85		15	2.5	1.5	45	100
18	Main St	S of Foresthill Rd	900	85		15	2.5	1.5	45	100
19	Michigan Bluff Rd	S of Foresthill Rd	400	85		15	2.5	1.5	45	100
20	Race Track St	N of Foresthill Rd	1350	85		15	2.5	1.5	45	100
21	Todd Valley Connection	Todd Valley to Foresthill	900	85		15	2.5	1.5	45	100
22	Spring Garden Connection	E. of Spring Garden Rd	150	85		15	2.5	1.5	45	100
23	Spring Garden Connection	N. of Foresthill Rd	1850	85		15	2.5	1.5	45	100



Appendix B-4
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2002-066
Desciption: Cumulative+Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	*Roadway Name*	*Segment Description*	*ADT*	*Day %*	*Eve %*	*Night %*	*% Med. Trucks*	*% Heavy Trucks*	*Speed*	*Distance*
1	Foresthill Road	E of Foresthill Bridge	16500	85		15	2.5	1.5	45	100
2	Foresthill Road	W. of Spring Garden	16600	85		15	2.5	1.5	45	100
3	Foresthill Road	E of Happy Pines Dr	14500	85		15	2.5	1.5	45	100
4	Foresthill Road	W of Owl Hill Court	14200	85		15	2.5	1.5	45	100
5	Foresthill Road	W. of Mosquito Ridge	13900	85		15	2.5	1.5	45	100
6	Foresthill Road	W. of Yankee Hill Rd	11500	85		15	2.5	1.5	45	100
7	Foresthill Road	E of Yankee Hill Rd	9200	85		15	2.5	1.5	45	100
8	Foresthill Road	W of Blackhawk Ln	3350	85		15	2.5	1.5	45	100
9	Foresthill Road	W of Michigan Bluff	1800	85		15	2.5	1.5	45	100
10	Foresthill Road	E of Michigan Bluff	1350	85		15	2.5	1.5	45	100
11	McKeon-Ponderosa	S of Foresthill Rd	1700	85		15	2.5	1.5	45	100
12	Spring Garden Rd	N of Foresthill Rd	1150	85		15	2.5	1.5	45	100
13	Happy Pines Dr	S of Foresthill Rd	1450	85		15	2.5	1.5	45	100
14	Todd Valley Rd (W)	S of Foresthill Rd	3200	85		15	2.5	1.5	45	100
15	Todd Valley Rd (E)	S of Foresthill Rd	600	85		15	2.5	1.5	45	100
16	Mosquito Ridge Rd	S of Foresthill Rd	1400	85		15	2.5	1.5	45	100
17	Yankee Jim's Rd	N of Race Track St	2100	85		15	2.5	1.5	45	100
18	Main St	S of Foresthill Rd	900	85		15	2.5	1.5	45	100
19	Michigan Bluff Rd	S of Foresthill Rd	400	85		15	2.5	1.5	45	100
20	Race Track St	N of Foresthill Rd	1700	85		15	2.5	1.5	45	100
21	Todd Valley Connection	Todd Valley to Foresthill	700	85		15	2.5	1.5	45	100
22	Spring Garden Connection	E. of Spring Garden Rd	100	85		15	2.5	1.5	45	100
23	Spring Garden Connection	N. of Foresthill Rd	3000	85		15	2.5	1.5	45	100



Appendix M

STATE OF CALIFORNIA - BUSINESS, TRANSPORTATION AND HOUSING AGENCY
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
Division of Housing Policy Development
1800 Third Street, Room 430
P. O. Box 952053
Sacramento, CA 94252-2053
(916) 323-3176 FAX (916) 327-2643
E-mail: cahorse@hcd.ca.gov

GRAY DAVIS, Gov

July 10, 2003

Ms. Jan Christofferson
Chief Executive Officer
County of Placer
175 Fulweiler Avenue
Auburn, California 95603

Dear Ms. Christofferson:

RE: Review of the County of Placer's Adopted Housing Element

Thank you for submitting the County's housing element adopted on May 20, 2003 and received for our review on June 10, 2003. As you know, we are required to review adopted housing elements and report our findings to the locality pursuant to Government Code Section 65585(h). Previous telephone conversations with Ms. Charlene Daniels, Senior Planner, and Ms. Lisa Wise, the County's consultant, facilitated our review of the adopted housing element.

As you know, the Department's April 3, 2003 review found the revisions to the adopted element addressed the statutory requirements of State housing element law. Given the County adopted all revisions, we are pleased to find the element in full compliance with the State housing element law (Article 10.6 of the Government Code).

We commend the County for adopting a variety of programs and implementation actions to provide and maintain housing affordable to all economic segments of the population. Specifically, we recognize Placer County's efforts to rezone parcels to multifamily residential providing additional land for higher density residential development (Program 20). This action will facilitate the development of housing for lower-income families and workers. We also commend the County for its programmatic commitment to provide incentives for mixed-use developments to further assist the County in meeting its share of the regional housing need and implement its vision for vibrant, livable communities.

The lack of affordable housing is becoming more acute throughout the State, including Placer County. The County's housing element now reflects a stronger commitment to accommodate the housing needs of its residents and overcome the numerous development challenges and obstacles that face communities throughout the State. As described in the adopted housing element, the County should monitor, evaluate and report on the effectiveness of its housing and community development programs and corresponding actions. The annual implementation reports are required to be completed and submitted to the local legislative body and the Department by October 1 of each year.

Also, for your information, upon completion of an amended or adopted housing element, a local government is responsible for distributing a copy of the element to area water and sewer providers (Government Code Section 65589.7). This section of the law requires public and/or private water and

wastewater providers give a priority to proposed housing development projects for lower-income households in their current and future resource or service allocations. Local public and/or private water and sewer providers must grant a priority for service hook-ups to developments that help meet the community's share of the regional need for lower-income housing.

We wish the County continued success in implementing its housing element. If we can be of assistance in implementing the programs or policies of the element, or should you have any questions, please contact Don Thomas, of our staff, at (916) 445-5854.

In accordance with requests pursuant to the Public Records Act, we are forwarding copies of this letter to the persons and organizations listed below.

Sincerely,

Cathy E. Creswell

Cathy E. Creswell
Deputy Director

cc: Fred Yeager, Planning Director, Placer County Planning Department
Charlene Daniels, Senior Planner, Placer County Planning Department
Lisa Wise, Crawford, Multari & Clark
Mark Stivers, Senate Committee on Housing & Community Development
Suzanne Ambrose, Supervising Deputy Attorney General, AG's Office
Terry Roberts, Governor's Office of Planning and Research
Nick Cammarota, California Building Industry Association
Marcia Salkin, California Association of Realtors
Marc Brown, California Rural Legal Assistance Foundation
Rob Weiner, California Coalition for Rural Housing
John Douglas, AICP, Civic Solutions
Deanna Kitamura, Western Center on Law and Poverty
S. Lynn Martinez, Western Center on Law and Poverty
Alexander Abbe, Law Firm of Richards, Watson & Gershon
Michael G. Colantuono, Colantuono, Levin & Rozell, APC
Ilene J. Jacobs, California Rural Legal Assistance, Inc.
Richard Marcantonio, Public Advocates
Wendy Anderson, Legal Services of Northern California
Brian Augusta, Legal Services of Northern California
Celestial Cassiman, Legal Services of Northern California
Larry Stenzel, Resources for Independent Living
Dara Schur, Protection & Advocacy, Inc.
Ethan Evans, Sacramento Housing Alliance

CC: Linda Williams - HHS Community Services
JoAnn Auerbach - CEO Redevelopment
Rich Colwell - CEO Office
Ed Graves - CEO - Economic Development
Holly Heinzen - CEO Ofc.
Allison Carlson - CEO Ofc.

Appendix N

APPENDIX N
LIST OF PERSONS WHO PREPARED THIS EIR

Roberta MacGlashan, AICP, Quad Knopf, Project Manager
Eugene E. Smith, AICP, Principal Planner, Quad Knopf
Kim Hansen, Senior Planner, Quad Knopf
Stephen Peck, AICP, Principal Planner, Quad Knopf
Joe O'Bannon, Senior Planner, Quad Knopf
Harry Tow, C.E., AICP, Principal Engineer, Quad Knopf
Joe Allen, GIS Specialist, Quad Knopf
Mike Haskell, Associate Planner, Quad Knopf
Courtney Schwab, Quad Knopf
Harriet Vincent, Quad Knopf
Susan Lindstrom, Ph.D., Consulting Archaeologist
Julia Townsend, P.E., Traffic Engineer, kdAnderson Transportation Engineers
Neal Liddicoat, P.E., Senior Traffic Engineer, Martin Rivett Olson, Engineers
Jim Brennan, Bollard and Brennan
Brian Mayerle, Biologist, Foothill Associates
Don Ballanti, Certified Consulting Meteorologist

Placer County Housing Element (Draft). May 2002.

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Appendix O

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